

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

United States Department of Agriculture,

DIVISION OF PUBLICATIONS—CIRCULAR 1.

[Revised July 1, 1912.]

ORGANIZATION OF DEPARTMENT OF AGRICULTURE, 1912.

The following statement has been revised to include July 1, 1912. It shows the organization of the several branches of the department as furnished by the chiefs of bureaus, divisions, and offices.

JOS. A. ARNOLD,
Editor and Chief.

Approved.

JAMES WILSON,
Secretary of Agriculture.

WASHINGTON, D. C., July 1, 1912.

OFFICE OF THE SECRETARY.

Secretary of Agriculture, JAMES WILSON.

The Secretary exercises personal supervision of public business relating to the agricultural industry. He appoints all the officers and employees of the department with the exception of the Assistant Secretary and the Chief of the Weather Bureau, who are appointed by the President, and directs the management of all the bureaus, divisions, offices, and the Forest Service, embraced in the department. He exercises advisory supervision over agricultural experiment stations which receive aid from the National Treasury; has control of the quarantine stations for imported cattle, of interstate quarantine rendered necessary by sheep and cattle diseases, and of the inspection of cattle-carrying vessels, and directs the enforcement of the meat-inspection and food and drugs laws under which the inspection of domestic and imported food products is carried on. He is charged with the duty of issuing rules and regulations for the protection, maintenance, and care of the national forest reserves. He is also charged with carrying into effect the laws prohibiting the transportation by interstate commerce of game killed in violation of local laws, and excluding from importation certain noxious animals, and has authority to control the importation of other animals.

The law establishing the department, approved May 15, 1862, outlines the most important features of the work in the following provisions:

* * * the general design and duties of which [the Department of Agriculture] shall be to acquire and to diffuse among the people of the United States useful information on subjects connected with agriculture in the most general and comprehensive sense of that word and to procure, propagate, and distribute among the people new and valuable seeds and plants. * * *

* * * to acquire and preserve in his department all information concerning agriculture which he can obtain by means of books and correspondence and by practical and scientific experiments (accurate records of which experiments shall be kept in his office). by the collection of statistics; and by any other appropriate means within his power; to collect, as he may be able, new and valuable seeds and plants; to test by cultivation the value of such of them as may require such tests; to propagate such as may be worthy of propagation, and to distribute them among agriculturists. He shall annually make a general report in writing of his acts to the President and to Congress, in which he may recommend the publication of papers forming parts of or accompanying his report, which report shall also contain an account of all moneys received and expended by him. He shall also make special reports on particular subjects whenever required to do so by the President or either House of Congress or when he shall think the subject in his charge requires it.

Assistant Secretary of Agriculture, WILLET M. HAYS.

The Assistant Secretary of Agriculture performs such duties as may be required by law or prescribed by the Secretary. He also becomes the Acting Secretary of Agriculture in the absence of the Secretary.

Chief Clerk, C. C. CLARK.

The chief clerk has the general supervision of the clerks and employees; of the order of business and of the records and correspondence of the Secretary's office; of all expenditures from appropriations for contingent expenses, stationery, etc. He is responsible for the enforcement of the general regulations of the department and is custodian of the buildings occupied by the Department of Agriculture.

Appointment Clerk, R. W. ROBERTS.

The appointment clerk is charged by the Secretary with the decision of all questions affecting appointments, transfers, promotions, reductions, details, furloughs, and removals in their relation to the civil-service law and regulations and with the preparation of all papers necessitated thereby, and he deals with all questions affecting positions in the classified service. He has charge of all correspondence of the department with the United States Civil Service Commission and of all certificates and communications issued by that commission to the department. He supervises the preparation of all documents to be submitted to the Secretary of Agriculture for his signature in making appointments, transfers, promotions, reductions, furloughs, and removals in the Department of Agriculture. He is the recorder and custodian of the oaths of office and personal reports of all persons appointed in the department and of all reports of the several chiefs of bureaus, divisions, and offices, respecting the efficiency of the several clerks and employees under their respective supervision in the department. He has the custody and use of the department seal.

Chief of Supply Division, CYRUS B. LOWER.

It is the duty of the chief of the supply division to make all purchases of stationery and miscellaneous supplies and to issue the same on requisitions to the various bureaus and divisions of the department; to receive and send out all express and freight shipments; and to receive and dispose of, by sale or otherwise, all property turned in by the various bureaus and offices when it is of no further use to them.

OFFICE OF THE SOLICITOR.

GEORGE P. McCABE, *Solicitor*.

The Solicitor is charged by law (act of Congress approved May 26, 1910), with "the supervision and direction of the legal work of the Department of Agriculture." In accordance therewith, the Solicitor acts as legal adviser to the Secretary and has charge of the preparation of all legal papers to which the department is a party, and of all communications to the Department of Justice and to the various officers thereof, including United States attorneys; he represents the department in all legal proceedings arising under the various statutes intrusted to the department for execution. The legal work of all bureaus, offices, and divisions of the department, including all matters on which legal advice is necessary, is referred to him. All alleged violations of the acts for the protection of the national forests, the animal quarantine laws, the meat-inspection law, the twenty-eight hour law, the insecticide act, and other statutes intrusted to this department for execution, are referred to the Solicitor to determine the action to be taken thereon by the department. The cases under the food and drugs act reported for prosecution by the board of food and drug inspection are prepared under the supervision of the Solicitor for reference to the Attorney General. The Solicitor examines and approves, in advance of issue, all orders and regulations promulgated by the Secretary under statutory authority; he prosecutes applications of employees of the department for patents to be dedicated to the public, and prepares all compilations of laws in which the department is interested.

GENERAL OFFICE ADMINISTRATION. ENFORCEMENT OF THE TWENTY-EGHT HOUR LAW; BRIEFS, MEMORANDA, AND MISCELLANEOUS CORRESPONDENCE.

W. P. JONES, *assistant to the solicitor, in charge*.

This section is charged with the supervision of all matters in connection with the twenty-eight hour law (act of June 29, 1906), including the preparation of cases arising under the act and correspondence with the Attorney General and United States attorneys relative thereto. The general administrative conduct of the office, briefs and miscellaneous correspondence, are also handled by this section. In the absence of the Solicitor the assistant in charge of this section acts as Solicitor, and is in general charge of the office.

LAW WORK OF THE FOREST SERVICE.

R. W. WILLIAMS, *assistant to the solicitor, in charge*.

This section handles all the legal work of the Forest Service embraced in six clearly defined divisions, as follows:

1. *Claims*.—Comprising the litigation incident to contests in the General Land Office and before the Secretary of the Interior arising out of claims to lands in the national forests under homestead, mineral, and other laws.

2. *Trespasses*.—Comprising the examination of reports and recommendations of the officers of the Forest Service in trespass cases on the national forests, for the purpose of determining action to be taken by the Secretary; preparation of cases for submission to the Attorney General; and supervision of letters prepared by the district law officers reporting to the Attorney General timber, fire, fencing, and other trespasses on the national forests.

3. *Opinions*.—Comprising the preparation of opinions to the Forester on all legal questions arising in the administration of the Washington office of the Forest Service.

4. *Review of opinions of the assistants to the solicitor in the Field*.—Comprising review for approval, modification, disapproval, and final draft where necessary, of formal written opinions of the district law officers to the district foresters.

5. *Titles*.—Examination of titles under act of March 1, 1911.

6. *Miscellaneous*.—Comprising, in part, draft of contracts, bonds, stipulations, and forms required in the administration of the national forests; reports to the Secretary on proposed action by him in reference to use and occupation of the national forests; preparation of letters requesting opinions of the Attorney

General and Comptroller of the Treasury on questions arising in the administration of the national forests; supervision of correspondence with the Attorney General in all matters relating to the administration of the national forests; and replies to inquiries addressed to the department relative to legal questions touching the national forests.

ENFORCEMENT OF THE FOOD AND DRUGS ACT.

P. D. CRONIN, *assistant to the solicitor, in charge.*

This section of the office has charge of all work in connection with the enforcement of the food and drugs act (act of June 30, 1906), including the preparation of cases arising under section 2 of the statute, for submission to the Attorney General, the handling of seizures under section 10, and the preparation of notices of judgment under section 4 of the same act.

CONTRACT WORK; ENFORCEMENT OF THE MEAT-INSPECTION LAW; PATENTS.

C. W. BOYLE, *assistant to the solicitor, in charge.*

This section of the office is charged with the drawing of agreements and leases to which this department is a party and with renewals of the same; in addition all cases arising under the meat-inspection law are prepared by the assistant in charge for submission to the Attorney General, including correspondence with the Attorney General and with United States attorneys regarding the same.

This section also has charge of all work in connection with the prosecution of applications of employees of the department for patents, to be dedicated to the public.

ENFORCEMENT OF THE INSECTICIDE AND ANIMAL QUARANTINE ACTS.

O. H. GATES, *assistant to the solicitor, in charge.*

This section has charge of all cases arising under the insecticide act of April 26, 1910, and the acts of May 29, 1884, February 2, 1903, and March 3, 1905, relative to the importation, exportation, and interstate transportation of diseased live stock, for transmission to the Attorney General, including correspondence with the Attorney General and United States attorneys regarding the same, together with the supervision of all orders issued by the Secretary from time to time defining or referring to quarantine for diseases of live stock.

FILE ROOM.

EDWIN S. FRENCH, *in charge.*

This section has charge of the files of this office and also receives, sends out, and handles the mail.

STENOGRAPHIC SECTION.

HARRISON F. FITTS, *in charge.*

This section is charged with the stenographic and typewriting work of the office.

ASSISTANTS TO THE SOLICITORS, STATIONED IN THE FIELD.

W. C. HENDERSON, G. E. TROWBRIDGE, EARL C. ARNOLD, R. F. FEAGANS, W. D. STALEY, H. P. DECHANT, H. H. CLARKE, J. F. LAWSON, J. O. SETH, D. F. MCGOWAN.

Branches of the office of the solicitor are located at Missoula, Mont.; Portland, Oreg.; Ogden, Utah; San Francisco, Cal.; Denver, Colo., and Albuquerque, N. Mex. There are two assistants to the Solicitor stationed at each office, with the exception of San Francisco and Ogden. At Ogden there is one assistant to the solicitor at present, and at San Francisco there is one assistant to the solicitor, and one clerk. These offices were established, in the beginning, for the handling of legal work of the Forest Service in the field. The as-

sistants to the solicitor are the legal advisers of the district foresters; in addition, they now handle such local legal work of the Department of Agriculture as may be assigned by the solicitor.

THE WEATHER BUREAU.

Chief, WILLIS L. MOORE; Assistant chief, HENRY E. WILLIAMS; Chief clerk and executive assistant, DANIEL J. CARROLL.

The Chief of the Weather Bureau, under the direction of the Secretary of Agriculture, has charge of the forecasting of the weather; the issue and display of weather forecasts, and storm, cold wave, frost, and flood warnings for the benefit of agriculture, commerce, and navigation; the gauging and reporting of river stages; the maintenance and operation of the United States Weather Bureau telegraph and telephone lines; the collection and transmission of marine intelligence for the benefit of commerce and navigation; the reporting of temperature and rainfall conditions for the corn, wheat, cotton, sugar, rice, and other interests; the distribution of meteorological information in the interests of agriculture and commerce, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States, or as are essential for the proper execution of the foregoing duties. In the absence of the Secretary of Agriculture and the Assistant Secretary he becomes Acting Secretary of Agriculture.

For the purpose of making its daily atmospheric survey, the Weather Bureau maintains a central office in Washington and about 200 subordinate stations in various portions of the United States, including Alaska and Hawaii, and throughout the West Indies. In addition to these it receives, through the courtesy of the Governments concerned, daily telegraphic reports of observations made in Canada on the north, Mexico on the south, in the Azores and Iceland, along the western coast of Europe, in European and Asiatic Russia, and in China, Japan, and the Philippine Islands, thus covering within its field of observation practically the whole of the inhabited portions of the North American Continent, the North Atlantic Ocean, western and northern Europe, and northern and eastern Asia.

The assistant chief, under the direction of the chief of bureau, has the supervision of matters pertaining to the personnel of stations, such as appointments, promotions, details, and assignments, and of such other matters as are not specifically assigned to the various divisions. In the absence of the chief of bureau he performs the duties of that official.

In addition to the duties imposed by the statutes on bureau chief clerks, the chief clerk and executive assistant of the Weather Bureau performs the duties of the assistant chief in the absence of that official, and in the absence of both the chief and assistant chief he assumes charge of the bureau. He controls all disbursements payable from the contingent fund and is charged with the care and preservation of the Weather Bureau buildings and grounds in Washington, D. C. He has supervision of the heat, light, and power plants, electrical work, the carpenter shop, the drafting room, and the United States Capitol and Union Station weather-map stations. He has direct charge of all mechanics and employees not assigned to divisions, including the supervision of the watch force and the general messenger and laborer service. He inspects and passes upon all requests for printing and binding, and is the custodian of all administrative papers and of papers and records relating to the personnel of the bureau.

DIVISION OF OBSERVATIONS AND REPORTS.

HENRY L. HEISKELL, in charge.

The duties of this division include the subdivisions of the forecast and marine meteorological services.

Forecast section.—This section receives and charts twice daily, telegraphic reports of the prevailing weather conditions throughout the field of observation. From the observations thus charted the forecast official issues a statement of impending weather changes in all parts of the country, including the Great Lakes, the seacoasts, and the North Atlantic steamer route as far eastward as the Grand Banks. In the case of severe disturbances warnings are issued, not only to the regular Weather Bureau stations along the Lakes and

seacoast, but also to 236 special storm-warning stations at the lesser ports and at exposed points visible from the fairway of vessels. The forecast official also issues warning of approaching cold waves and heavy snows in the winter season and of frost in the spring and fall months, special attention being given to the needs of truck farmers in the Gulf and South Atlantic States, the cranberry growers of Wisconsin, New Jersey, and Massachusetts, and the fruit growers of Florida, California, and the Central and Northwestern States.

This section has charge of the general distribution of the weather forecasts and the special warnings of cold waves, frosts, and severe local storms, by telegraph at Government expense, and of the gratuitous dissemination of all such information by telephone, telegraph, railway train and telegraph service, regular mail service, and rural delivery. It has supervision of the storm-warning display stations on the Great Lakes and the Atlantic, Pacific, and Gulf coasts, the stations displaying flags representing the daily weather forecasts, and a number of special meteorological stations in the United States.

This section also conducts special studies that apply to the problem of weather forecasting. It also has supervision over the commercial maps published in the papers and the large glass maps made at the stations.

The marine section.—This section collates from the reports of vessels of war or commerce, or other sailing craft, all meteorological and physical information pertaining to the oceans and Great Lakes; plots the data (pressure, temperature, wind, and weather) on daily synoptic charts for study and for the preparation of monthly summary charts for use in tracing the atmospheric conditions from continent to continent; collects and compiles in tabular form the meteorological data just mentioned for use in the preparation of the monthly meteorological charts of the Atlantic, Pacific, and Indian Oceans and the Great Lakes, issued by the Weather Bureau, and also of the monthly pilot charts of the same oceans, published by the Hydrographic Office, Navy Department. The normal pressure and temperature, wind roses showing the direction and force of the prevailing winds for all coast stations and each 5° square of latitude and longitude, and the percentage of fogs and gales are portrayed on these charts. This work includes the collection of reports from 2,552 cooperating marine observers, embracing a large percentage of the merchant and naval service of every seafaring nationality; checking and acknowledging the receipt of about 12,600 reports, and the distribution of the forms for recording the data; and the supervision of 23 distributing centers on the Atlantic, Gulf, and Pacific coasts, and at San Juan, Porto Rico, and Honolulu, Hawaii, and 19 stations on the Great Lakes.

The section is charged with the supervision of the radio telegraphic weather service of the Atlantic and Pacific coasts. The utilization of vessel weather reports by the Weather Bureau officials at Washington, D. C., San Francisco, and Portland, Oreg., and of the reports received from vessels of the Japanese Government and those in the Alaskan trade by the officials at San Francisco and Portland, Oreg., has proved of great value in forecasting the weather conditions. Advantage is also taken of the service in getting reports by radiograph from vessels during the hurricane season, regular paid observers being employed on 30 vessels engaged in trade with West Indian and South American ports. It also supervises the marine reporting service at the telegraphic coast stations on the Atlantic and Pacific coasts, including the reporting at the recipient's expense, to all parties requesting it, information of all passing vessels, and of wrecks, marine disasters, and other casualties, and the transmission of all communications between masters, owners, underwriters, and others concerned. During the past fiscal year these stations reported the passing of 27,631 vessels.

RIVER AND FLOOD DIVISION.

HARRY C. FRANKENFIELD, *in charge.*

As the name implies, this division is concerned with the rivers of the United States. In times of average or low-water stages its business is to facilitate commerce by giving information as to future stages of water along the navigable rivers: its chief function, however, is the issuance of flood warnings in times of threatened danger to life and property along the rivers, whether navigable or otherwise. There are 401 special river stations along the rivers of the country, in addition to 61 regular Weather Bureau stations where river observations are taken. There are also 83 special rainfall stations maintained

in the various watersheds. This division also has charge of the gathering of information as to the depth of snowfall in the mountains of the West, for a study of the flow of water in the streams supplying the great irrigation projects in those regions, and of the study of the rate of evaporation from ponds and lakes, in the interest of water storage for irrigation, power development, or navigation.

Another function of this division is the supervision, on the part of the Weather Bureau, of the experiment stations maintained jointly by the Weather Bureau and the Bureau of Forestry.

THE CLIMATOLOGICAL DIVISION.

P. C. DAY, *in charge*.

This division has supervision over about 4,000 cooperative stations, and about 300 special stations maintained in connection with the corn and wheat, cotton, and sugar and rice industries of the country. From these are collected the records of daily observations of temperature, precipitation, and other meteorological conditions necessary to establish a history of the climate of the various portions of the United States.

The records from the cooperative and special stations and the full meteorological reports from the regular stations of the bureau are permanently filed in this division, which prepares therefrom the tabular climatic data for the annual report of the chief of bureau, the principal tables and charts of the Monthly Weather Review, and such papers on the climatology of the various portions of the country as are necessary to meet the public needs. It furnishes certified copies of weather records for use in courts, and the general meteorological and climatological data required by individuals for business, health, or other reasons.

This division has charge of the collection of weather information from numerous correspondents during the seasons of planting, growth, and harvest, and of the dissemination of the same by the issuance of bulletins, or otherwise. Special attention is given to the corn, wheat, cotton, sugar, and rice interests, daily bulletins of weather conditions being issued during the season in the districts where these crops are largely grown. It also collects and publishes weekly during the winter months data showing the depth of snow on the ground and the thickness of ice in rivers and harbors.

This division has charge also of the barometry of the United States, and the preparation of the normals of pressure, temperature, vapor pressure, precipitation, etc.; and of the interbureau cooperation between the Weather Bureau, Reclamation Service, water-resources branch of the Geological Survey, Forest Service, and the Bureau of Plant Industry, in the study of problems of mutual interest.

The official in charge of the climatological division is the editor of the Monthly Weather Review, which contains text, charts, and statistical tables illustrating the dominant weather conditions of each month, a brief statement of the forecasts of storms and floods, a climatological summary, special contributions relative to meteorology, and a list of recent papers bearing on the work of the bureau, or added to its library.

The work of examining the various meteorological reports, daily, monthly, and annual, excepting those pertaining wholly to marine work, is performed in this division.

THE INSTRUMENT DIVISION.

CHARLES F. MARVIN, *in charge*.

The instrument division is charged with the equipment of stations with the instruments required and used in the making of meteorological observations.

The instruments are purchased under detailed specifications emanating from the division, and before issue to stations are thoroughly tested and adjusted so that their errors become known and their indications are made certain and reliable.

All station officials are directed and instructed in detail in regard to the exposure and installation of instruments, in order to secure uniformity in the observational methods throughout the service, and to realize the greatest possible accuracy in the data collected.

The record sheets from the automatic instruments sent in from stations are critically inspected to ascertain not only whether the instruments are rendering proper service, but as well to determine whether the observers fully understand the several instruments and maintain them in proper operation.

The division is also charged with the engineering details in connection with the equipment of the storm-warning stations with steel towers for the display of flags and electric and oil-burning lanterns, and the installation of automatic and recording river gauges.

THE TELEGRAPH DIVISION.

THEODORE T. MOORE, *chief*.

The Telegraph Division is charged with the receipt and transmission of all telegrams, the arrangement and control of telegraph circuits, the maintenance and repair of United States Weather Bureau telegraph and telephone lines and submarine cables, and the examination of all telegraph accounts.

THE LIBRARY.

CHARLES F. TALMAN, *librarian, in charge*.

The library of the Weather Bureau contains about 32,000 books and pamphlets. It includes standard works of reference and technical books on meteorology and allied sciences for the use of Weather Bureau officials in Washington and elsewhere, and a very complete file of the publications of meteorological and climatological services in all parts of the world. Especial attention is paid to the collection and classification of climatological data from distant regions, constant demands for which are received from officials in the different bureaus of the department as well as from the public through correspondence.

A catalogue is prepared of the meteorological contents of all the principal scientific periodicals of the world, including proceedings and transactions of societies. Lists of recent books and papers bearing on meteorology are compiled for publication in the Monthly Weather Review.

Miscellaneous scientific information is furnished in response to requests from Weather Bureau officials and from the public. All translations from foreign languages are made in the library.

The librarian also has supervision over the collection of text and reference books allowed each local office of the Weather Bureau, and has charge of the examinations for promotion in the Weather Bureau.

THE PUBLICATION DIVISION.

JOHN P. CHURCH, *chief*.

This division is charged with the printing and mailing of the daily weather map and the various charts and miscellaneous printed matter pertaining to the Weather Bureau, and with the custody and distribution of station forms.

THE DIVISION OF SUPPLIES.

ROBERT SEYBOTH, *chief*.

This division is charged with the purchase and issue of supplies and the safe-keeping of all public property belonging to the Weather Bureau.

ACCOUNTS.

[Division of accounts and disbursements, Weather Bureau branch.]

EDGAR B. CALVERT, *in charge*.

The division of accounts audits, adjusts, and prepares for payment all accounts and claims against the Weather Bureau; prepares advertisements; issues requests for passenger transportation; prepares the annual estimates of appropriations; transacts all business relating to the financial interests of the Weather Bureau; and supervises the construction of Weather Bureau buildings outside of Washington, including repairs thereto.

MOUNT WEATHER METEOROLOGICAL RESEARCH OBSERVATORY.

(Mount Weather, Va.)

ALFRED J. HENRY, *in charge*.

The purpose of this observatory is to carry on an extensive system of observations and experiments along the line of meteorological research. The work includes the exploration of the atmosphere to altitudes of 3 to 10 miles by means of kites and balloons; research in the allied subjects of solar radiation and atmospheric electricity; the discussion of meteorological observations from the point of view of their relation to solar physics and weather forecasting. At this institution the Weather Bureau has the most approved apparatus for measuring atmospheric electricity, magnetism, and solar radiation. The results of these observations and experiments are described in the Bulletin of the Mount Weather Observatory. The official in charge has supervision of the instruction of newly-appointed assistant observers assigned to Mount Weather for that purpose.

WEATHER BUREAU STATIONS AND WORK OUTSIDE OF WASHINGTON, D. C.

In the performance of the duties imposed upon it by the organic act the Weather Bureau maintains throughout the United States, in the West Indies, and in Hawaii about 200 meteorological stations employing from 1 to 10 men each. At these stations regular meteorological observations are taken and telegraphed, meteorological data recorded and tabulated, and the forms and publications necessary to the effective distribution of the forecasts, warnings, and climatological data prepared and issued.

For forecast purposes the United States is divided into districts comprising: (1) The Upper Mississippi Valley and the Northwest, Henry J. Cox, Chicago, Ill., in charge. (2) Louisiana, Texas, Arkansas, and Oklahoma, Isaac M. Cline, New Orleans, La., in charge. (3) Utah, Colorado, New Mexico, and Arizona, Frederick H. Brandenburg, Denver, Colo., in charge. (4) California and Nevada, Alexander G. McAdie, San Francisco, Cal., in charge. (5) Washington, Oregon, and Idaho, Edward A. Beals, Portland, Oreg., in charge. (6) The remainder of the United States, forecaster on duty, Washington, D. C., in charge. At the first three of the stations named morning forecasts only are prepared and distributed; at the last three, both morning and evening forecasts.

For purposes of inspection the United States is divided into two inspection districts, designated, respectively, the eastern district, which includes the region to the east of the Mississippi River and all Weather Bureau stations on that river, and the western district, comprising the remainder of the United States. The inspectors of the Weather Bureau are Norman B. Conger and Henry B. Hersey, with headquarters at Detroit, Mich., and Milwaukee, Wis., respectively.

For the collection and distribution of climatological data and information relating to current weather conditions, the United States, including Porto Rico and Hawaii, is divided into 44 local sections, which, with the names of the officials in charge and the section centers, are as follows:

Alabama, Patrick H. Smyth, Montgomery.	Indiana, Verne H. Church, Indianapolis.
Arizona, Robert R. Briggs, Phoenix.	Iowa, George M. Chappel, Des Moines.
Arkansas, Henry F. Alciatore, Little Rock.	Kansas, Thorp B. Jennings, Topeka.
California, Alexander G. McAdie, San Francisco.	Kentucky, Ferdinand J. Walz, Louisville.
Colorado, Frederick H. Brandenburg, Denver.	Louisiana, Isaac M. Cline, New Orleans.
Florida, Alexander J. Mitchell, Jacksonville.	Maryland and Delaware, Oliver L. Fassig, Baltimore, Md.
Georgia, Charles F. von Herrmann, Atlanta.	Michigan, Charles F. Schneider, Grand Rapids.
Hawaii, William B. Stockman, Honolulu.	Minnesota, Ulysses G. Purssell, Minneapolis.
Idaho, Edward L. Wells, Boise.	Mississippi, William E. Barron, Vicksburg.
Illinois, Clarence J. Root, Springfield.	Missouri, George Reeder, Columbia.

Montana, R. Frank Young, Helena.	Porto Rico, F. Eugene Hartwell, San Juan.
Nebraska, George A. Loveland, Lincoln.	South Carolina, Harry O. Geren, Columbia.
Nevada, Harvey S. Cole, Reno.	South Dakota, Samuel W. Glenn, Huron.
New England, John W. Smith, Boston, Mass.	Tennessee, Roscoe Nunn, Nashville.
New Jersey, Rosswitte E. Pollock, Trenton.	Texas, Bernard Bunnemeyer, Houston.
New Mexico, Charles E. Linney, Santa Fe.	Utah, Alfred H. Thiessen, Salt Lake City.
New York, Wilford M. Wilson, Ithaca.	Virginia, Edward A. Evans, Richmond.
North Carolina, Lee A. Denson, Raleigh.	Washington, George N. Salisbury, Seattle.
North Dakota, Orris W. Roberts, Bismarck.	West Virginia, Henry C. Howe, Parkersburg.
Ohio, J. Warren Smith, Columbus.	Wisconsin, Henry B. Hersey, Milwaukee.
Oklahoma, J. Pemberton Slaughter, Oklahoma.	Wyoming, Robert Q. Grant, Cheyenne.
Oregon, Edward A. Beals, Portland.	
Pennsylvania, George S. Bliss, Philadelphia.	

In order to present to the public in the most practical form the results of the climatological observations, the United States has been divided into twelve climatological districts, in accordance with the great natural drainage areas, and twelve district editors have been appointed over these districts who shall severally receive the observed data from the section directors and assist in editing the same for the Monthly Weather Review. These district editors are as follows:

Wilford M. Wilson, district No. 1, Ithaca, N. Y.
 Charles F. von Herrmann, district No. 2, Atlanta, Ga.
 Prof. Ferdinand J. Walz, district No. 3, Louisville, Ky.
 Prof. Henry J. Cox, district No. 4, Chicago, Ill.
 George M. Chappel, district No. 5, Des Moines, Iowa.
 Montrose W. Hayes, district No. 6, St. Louis, Mo.
 Isaac M. Cline, district No. 7, New Orleans, La.
 Bernard Bunnemeyer, district No. 8, Houston, Tex.
 Frederick H. Brandenburg, district No. 9, Denver, Colo.
 Alfred H. Thiessen, district No. 10, Salt Lake City, Utah.
 Prof. Alexander G. McAdie, district No. 11, San Francisco, Cal.
 Edward A. Beals, district No. 12, Portland, Ore.

The purpose is to make the Monthly Weather Review a journal of practical meteorology in regard to current problems of agriculture, transportation, water resources, forestry, etc.

BUREAU OF ANIMAL INDUSTRY.

Chief, A. D. MELVIN; *Assistant chief*, A. M. FARRINGTON; *Chief clerk*, CHARLES C. CARROLL.

The Bureau of Animal Industry has charge of the work of the department relating to the live-stock industry. In general it deals with the investigation, control, and eradication of diseases of animals, the inspection and quarantine of live stock, the inspection of meat and meat-food products, and with animal husbandry and dairying.

The bureau conducts the inspection of live stock, meats, and meat-food products intended for interstate or foreign commerce, under the act of Congress of June 30, 1906, and also has charge of the inspection of import and export animals, the inspection of ships for the transportation of export animals, and the quarantine stations for imported animals. It investigates the existence of communicable diseases of live stock, makes original scientific investigations as to the nature, cause, and prevention of such diseases, and takes measures for their repression and eradication, frequently in cooperation with State and Territorial authorities. As part of this work, a quarantine of the section infected with Texas or southern fever of cattle is maintained, the extermination of the tick which transmits this disease has been undertaken, and sheep scab and cattle mange are being eradicated from the West. The bureau makes investi-

gations in the breeding and feeding of animals and in regard to dairy subjects, and supervises the manufacture of and interstate commerce in renovated butter. Reports of scientific investigations and treatises on various subjects relating to the live-stock industry are prepared and published.

THE ANIMAL HUSBANDRY DIVISION.

GEORGE M. ROMMEL, *chief*.

This division gathers information and makes studies and experiments concerning the breeding and feeding of farm animals and poultry; determines the pure breeding of animals imported into the United States for breeding purposes under paragraph 432 of the tariff act of August 5, 1909, and attends to correspondence and prepares publications on these subjects. The division is now engaged in experiments in breeding small animals; the study of crossbreeding in sheep; the utilization of native goats for milk production; hybridizing the Grévy zebra with asses and horses; a study of the cost of production of poultry and eggs; a study of methods to improve the quality of farm eggs; and a study of market and transportation problems connected with the egg and poultry trade. Cooperative work with State agricultural experiment stations comprises investigations in animal nutrition at the Pennsylvania station, in beef production at the Alabama station, in horse breeding in Colorado, Iowa, and Vermont, in breeding milking Shorthorn cattle in Minnesota, in breeding Holstein-Friesian cattle in North Dakota, in poultry breeding and management in Maine, and in sheep breeding in Wyoming. The staff of this division includes G. Arthur Bell, senior animal husbandman in certification of pedigrees; E. L. Shaw, senior animal husbandman in sheep and goat investigations; Harry M. Lamon, junior animal husbandman in poultry investigations; E. H. Riley, animal husbandman in animal-breeding investigations; W. F. Hammond, superintendent of Morgan horse farm; John O. Williams, junior animal husbandman, in charge of Colorado horse-breeding station; Ralph J. Carr, junior animal husbandman in animal-nutrition investigations; and H. H. Reese, in charge of work of this division at the experiment farm, Beltsville, Md.

THE BIOCHEMIC DIVISION.

M. DORSET, *chief*.

This division prepares tuberculin and mallein and furnishes these substances free of charge to health officers for use in official tests. It conducts experiments concerning immunity, with the object of obtaining vaccines and antitoxins for animal diseases; carries on researches concerning the causes of certain infectious diseases; in connection with the meat-inspection service makes bacteriological and chemical examination of meats and meat-food products and of condiments, etc., used in their preparation; carries on experiments with dips and disinfectants; assists in enforcing the insecticide act of 1910 by examining articles intended for use in combating insects and fungi which infest domestic animals; prepares records of tests and experiments; and prepares for publication from time to time reports of work which has been completed.

The scientific staff of the division includes J. A. Emery, in charge of research work on meat products; T. M. Price, in charge of central meat-inspection laboratory; C. N. McBryde, in charge of bacteriological investigations of meats; W. B. Niles, inspector in charge of field experiments concerning hog cholera; R. M. Chapin, in charge of investigations of stock dips; A. E. Graham, C. H. Swanger, A. H. Roop, W. B. Smith, E. A. Boyer, and C. T. Marsh, chief laboratory inspectors in branch meat-inspection laboratories.

THE DAIRY DIVISION.

B. H. RAWL, *chief*.

The work of this division is "to collect and disseminate information concerning dairy farming, the care and improvement of dairy cattle, and the production, care, and distribution of dairy products." It maintains a general survey of the condition of the dairy industry in the country at large and in the different sections, in addition to special inquiries as to dairy organizations, dairy schools and facilities for technical instruction, State dairy laws, the development of markets,

the milk supply of cities and towns, and the laws and regulations in reference thereto.

Investigations are conducted in dairy-farm management, including special work in the Southern and Western States for the introduction of better dairy practice and the encouragement of diversified farming through the introduction of dairying. The formation of cow-test associations on a self-sustaining basis is receiving attention.

The division also makes investigations as to the manufacture of butter and cheese, including European varieties of cheese, and concerning dairy machinery and equipment. The division architect prepares plans and technical advice for the construction of sanitary and economical dairy buildings. The organization and management of creameries and factories and of the larger dairy enterprises, now increasing in number and importance, are receiving special attention. The division is also charged with the details of administration of the laws concerning the inspection of factories and markets for "renovated" or "process" butter.

Considerable attention has been given to work in connection with the improvement of city milk supplies. This is accomplished by means of cooperation with the local authorities. Public meetings are arranged wherein the producers, consumers, physicians, and others are brought together and the subject of milk improvement discussed. There is usually also a competitive exhibit of milk and cream. The score-card system of scoring dairies and farms used and recommended by the division is indispensable for this work. It has been found of great value in a large number of cities where it is now regularly in use.

Reports upon these lines of work are prepared and published, and an extensive correspondence is conducted to ascertain and meet the needs of those interested in the various departments of the dairy industry. The division seeks to serve as a clearing house for dairy experience and information. Its officers and agents visit the dairy centers and conventions for personal contact and advice.

The work of the Dairy Division is subdivided as follows: Dairy farming investigations, in charge of Helmer Rabild; dairy products investigations, in charge of I. A. Rogers; dairy manufacturing investigations, in charge of S. C. Thompson; market milk investigations, in charge of Ernest Kelly; renovated butter inspection, in charge of Robert McAdam.

THE MEAT INSPECTION DIVISION.

RICE P. STEDDOM, *chief*.

The work of the Meat Inspection Division includes the ante-mortem and the post-mortem inspection of cattle, sheep, swine, and goats, slaughtered at establishments engaged in interstate or foreign commerce; the supervision of such establishments and of the various processes of preparing, curing, canning, packing, etc., so as to insure sanitary conditions, equipment, and methods; the condemnation and proper disposal of carcasses and products found to be diseased, unwholesome, or otherwise unfit for human food; the marking and certification of meats and products that have been inspected and passed, and the regulation and supervision of the interstate transportation and exportation of meats and meat-food products. The meat inspection is carried on at 852 establishments in 242 cities and towns.

THE FIELD INSPECTION DIVISION.

R. A. RAMSAY, *chief*.

The work of this division consists in the inspection of live stock at points of origin, in transit, and at market centers, the disinfection of cars, and the supervision and enforcement of other measures to prevent the spread of contagious diseases through the channels of interstate commerce and to stamp out such diseases. This includes the eradication of southern cattle ticks, the inspection of southern cattle, and the supervision of their movement when forwarded from the area quarantined on account of Texas or southern cattle fever, also the inspection and, when necessary, the dipping of sheep and cattle to eradicate and prevent the spread of scabies. As a result of the latter work, in cooperation with State and Territorial authorities, sheep scab and cattle mange have been wiped out from large areas in the West where they were formerly prevalent, and efforts are being directed toward the ultimate eradication of these diseases from the United States.

THE PATHOLOGICAL DIVISION.

JOHN R. MOHLER, *chief*.

The work of this division is chiefly along the lines of investigating diseases of animals. It prepares and distributes blackleg vaccine and tabulates the results for publication; conducts scientific investigations of animal diseases; carries on experiments with immunizing agents for the purpose of protecting animals against diseases; cooperates with the State agricultural experiment stations with a view to combating diseases peculiar to the localities; determines pathological specimens referred to the division for diagnosis; and prepares answers to numerous inquiries regarding diseases of animals. Reports are prepared and published upon the experimental work carried on.

The scientific staff of the division includes Henry J. Washburn, senior bacteriologist; J. S. Buckley, in charge of blackleg investigations; George Byron Morse, in charge of investigations concerning diseases of poultry and cold-blooded animals; Charles F. Flocken, in charge of cooperative experiments with the Minnesota Experiment Station; Adolph Eichhorn, in charge of field investigations; Robert J. Formad, assistant in animal pathology; Jacob Traum, assistant in animal bacteriology; H. C. Campbell, in charge of cooperative experiments with Pennsylvania Live-stock Sanitary Board; H. J. Frederick, in charge of cooperative experiments with Utah Experiment Station; and L. Enos Day, in charge of branch pathological laboratory at Chicago, Ill.

THE QUARANTINE DIVISION.

RICHARD W. HICKMAN, *chief*.

The inspection and quarantine of imported animals with a view to excluding contagion, the management of the animal quarantine stations, and the inspection of live stock for export, come under this division. The ships carrying exported animals are also inspected, and regulations as to fittings, equipment, ventilation, feed, water, attendants, etc., are enforced. The Quarantine Division administers the sanitary regulations governing the importation of hides, hay, and straw, and directs the tuberculin testing of cattle and the mallein testing of horses for export and import. It also carries on cooperative work with State and other authorities for the intrastate tuberculin testing of dairy and breeding cattle and of cows supplying milk to cities, with a view to eliminating tuberculosis from dairy herds and from among such breeding cattle.

George W. Pope is acting assistant chief, and B. T. Woodward in charge of tuberculin testing of dairy cattle.

THE ZOOLOGICAL DIVISION.

B. H. RANSOM, *chief*.

This division investigates diseases of parasitic origin, and prepares and publishes reports on such investigations; collects and describes animal parasites of all kinds; determines such parasites as are sent to the bureau for identification, and conducts correspondence regarding them; keeps a card index of animal parasites and a bibliography of literature relating to them. Assistant zoologists are Albert Hassall, H. W. Graybill, Maurice C. Hall, and Howard Crawley; junior zoologist, W. D. Foster.

THE EXPERIMENT STATION.

E. C. SCHROEDER, *superintendent*; W. E. COTTON, *assistant*.

The Experiment Station of the bureau is located at Bethesda, Md. It is equipped for and conducts investigations regarding animal diseases with a view to their control and eradication and their bearing on the public health. A small farm is maintained in such a manner as to provide the other divisions of the bureau with facilities for making observations for which large domestic animals are needed.

The work of the station consists of independent original investigations and investigations in cooperation with and supplemental to those of the other divisions. Reports of the results obtained are written for publication.

THE EDITORIAL OFFICE.

JAMES M. PICKENS, *editor*.

The work of this office comprises the editing and proof reading of the publications of the bureau, the indexing of such as require it, the compilation of the annual report, and the preparation of special articles and other material for publication. This office also makes translations, compiles information, and attends to correspondence relating to the bureau's publications and miscellaneous subjects.

BUREAU OF PLANT INDUSTRY.

Physiologist and pathologist and chief of bureau, BEVERLY T. GALLOWAY; *Pomologist and assistant chief of bureau*, WILLIAM A. TAYLOR; *Chief clerk*, JAMES E. JONES; *Officer in charge of publications*, J. E. ROCKWELL; *Officer in charge of records*, W. P. COX; *Property clerk*, F. E. MELOY.

The Bureau of Plant Industry studies plant life in all its relations to agriculture. The scientific work of the bureau is divided into 30 distinct groups, over each of which is placed a scientifically trained officer who reports direct to the chief and assistant chief of the bureau. The work of the bureau is conducted on the project plan, the investigations conducted under each of the offices being arranged by group projects, consisting of closely related lines of work, which group projects are further divided into projects.

LABORATORY OF PLANT PATHOLOGY.

ERWIN F. SMITH, *pathologist in charge*.

This is the central working laboratory for all of the pathological investigations conducted by the bureau. Studies of the diseases of a wide variety of crop plants are made in the laboratory and supplemented by field investigation and experimentation.

Scientific staff.—R. E. B. McKenney, expert; Florence Hedges, assistant pathologist; Nellie A. Brown, Mary K. Bryan, and Lucia McCulloch, scientific assistants.

PATHOLOGICAL COLLECTIONS AND INSPECTION WORK.

FLORA W. PATTERSON, *mycologist in charge*.

This office is charged with the maintenance of economic collections of pathological and related material for use by the investigators of the bureau and visiting scientists, identifications of edible and poisonous fungi, problems in entomogenous fungi, and taxonomic cooperative work with various offices of the bureau, in addition to miscellaneous identifications. Systematic inspections are made of all plants received or distributed by the offices of Foreign Seed and Plant Introduction, Crop Physiology and Breeding Investigation, Gardens and Grounds, and Congressional Distribution, in order to prevent the introduction or dissemination of plant diseases.

Scientific staff.—Vera K. Charles, Frank J. Veihmeyer, and Ruby J. Tiller, scientific assistants.

FRUIT DISEASE INVESTIGATIONS.

MERTON B. WAITE, *pathologist in charge*.

This work is devoted to the study of the diseases of fruits and fruit trees and of methods of controlling or preventing them. The investigations cover orchard fruits, including citrus and small fruits and the cultivated nuts. Field demonstrations are an important part of the work.

Scientific staff.—C. L. Shear, pathologist; W. S. Ballard, assistant pathologist; Clara H. Hasse, L. A. Hawkins, George W. Keitt, F. V. Rand, J. W. Roberts, S. M. McMurran, W. Ralph Jones, and D. F. Fisher, scientific assistants; J. M. Shull, expert; Leslie Pierce, agent; and Angie M. Beckwith, expert xylotomist.

INVESTIGATIONS IN FOREST PATHOLOGY.

HAVEN METCALF, *pathologist in charge*.

This work consists of the study of the various diseases affecting forest trees and timber, as well as ornamental and shade trees. The work is conducted in close cooperation with the Forest Service.

Scientific staff.—George G. Hedgcock and Perley Spaulding, pathologists; E. P. Meinecke, J. Franklin Collins, James F. Weir, and William H. Long, forest pathologists; Carl P. Hartley, assistant pathologist; C. J. Humphrey, forest assistant; and Della E. Ingram, scientific assistant.

COTTON AND TRUCK DISEASE AND SUGAR-PLANT INVESTIGATIONS.

W. A. ORTON, *pathologist in charge*.

These investigations cover all diseases of garden vegetables, with special reference to the field demonstration of methods of control and prevention; studies of the diseases of cotton and of cowpeas and other forage crops; the collection of data regarding the general prevalence of plant diseases in the United States; work on problems relating to the culture and utilization of sugar beets, such as the combating of diseases, improvement in the yield and quality of the crop, extension of sugar-beet culture, and the improvement of methods of growing and handling the crop; also work on the culture and diseases of sugar cane, sugar maple, and sorghum, and other sugar-producing plants.

Scientific staff.—H. A. Edson, J. B. Norton, and F. J. Pritchard, physiologists; C. O. Townsend and L. L. Harter, pathologists; W. W. Gilbert and H. B. Shaw, assistant pathologists; C. F. Clark, G. F. Miles, Venus W. Pool, Clara O. Jamieson, Ethel C. Field, and M. B. McKay, scientific assistants; W. B. Clark, assistant chemist; H. W. Wollenweber, expert; E. C. Rittue, assistant; A. C. Lewis, L. O. Watson, and Joseph Rosenbaum, agents.

CROP PHYSIOLOGY AND BREEDING INVESTIGATIONS.

WALTER T. SWINGLE, *physiologist in charge*.

This work is concerned with an investigation of the physiology of crop plants with a view to determining the limiting factors which control their successful culture, and the breeding and testing of new varieties. Several field stations are maintained in order to test to better advantage the fitness of such varieties for commercial culture. Field investigations are conducted on some of the Indian reservations of the Southwest for testing under field conditions varieties of crop plants which seem likely to be suited for culture by the Indians themselves and the white settlers in adjoining regions. Dates, caprifigs, hardy citrus fruits, pistaches, and certain drought-resistant tree crops are being tested.

Scientific staff.—S. C. Mason, arboriculturist; G. P. Rixford, expert; E. M. Savage, assistant plant breeder; Bruce Drummond and E. W. Hudson, assistants; Maude Kellerman, botanical translator; and F. W. Savage, special agent.

SOIL BACTERIOLOGY INVESTIGATIONS.

KARL F. KELLERMAN, *physiologist in charge*.

This work has reference to the study of the relation of bacteria to soil fertility, plant growth, cellulose destruction, and the fixation of nitrogen. The distribution of pure cultures of nodule-forming bacteria for leguminous crops is a feature of the work. The organisms contaminating farm water supplies are also being studied, with a view to their eradication.

Scientific staff.—I. G. McBeth, F. M. Scales, R. C. Wright, F. L. Goll, L. T. Leonard, and E. H. Fawcett, scientific assistants.

ACCLIMATIZATION AND ADAPTATION OF CROP PLANTS—COTTON BREEDING.

O. F. COOK, *bionomist in charge*.

These investigations have special reference to the acclimatization in the South and Southwest of Central American varieties of cotton, corn, and other crop

plants originating in tropical countries. The breeding of cottons for the boll-weevil territory is a special feature of the work.

Scientific staff.—G. N. Collins, botanist; C. H. Clark and J. H. Kempton, assistants; A. T. Anders, G. B. Gilbert, J. H. Kinsler, C. G. Marshall, H. Pittier, and D. A. Saunders, agents; C. B. Doyle and R. M. Meade, scientific assistants; A. Aaronsohn, expert; and S. M. Bain, collaborator.

DRUG - PLANT, POISONOUS - PLANT, PHYSIOLOGICAL, AND FERMENTATION INVESTIGATIONS.

RODNEY H. TRUE, *physiologist in charge.*

This branch of the bureau is engaged in the study of a wide diversity of problems, covering the commercial culture of drug-producing crops and tea, the study of stock-poisoning plants, and methods of preventing the losses caused by these plants, and investigations in plant physiology and fermentation.

Scientific staff.—A. B. Clawson, Heinrich Hasselbring, C. Dwight Marsh, and W. W. Stockberger, physiologists; C. L. Alsberg, H. H. Bartlett, Otis F. Black, H. H. Bunzel, Frank Rabak, and A. F. Sievers, chemical biologists; Walter Van Fleet and James Thompson, experts; W. W. Eggleston, assistant botanist; and S. C. Hood, G. F. Mitchell, and T. B. Young, scientific assistants.

GRAIN STANDARDIZATION.

J. W. T. DUVEL, *technologist in charge.*

This work consists of special investigations relating to the handling, storing, and grading of grain on the farm, at country elevators, and in the terminal markets; and the handling of grain by transportation companies, with a view to encouraging the use of more improved and exact methods, and to establishing uniform and definite standards for the grading of grain. This work is conducted at Washington, D. C., and at branch laboratories located at Baltimore, Md.; Chicago, Ill.; Decatur, Ill.; Fargo, N. Dak.; Kansas City, Mo.; and New Orleans, La.

Scientific staff.—E. G. Boerner, H. J. Besley, W. P. Carroll, C. L. Cannon, J. H. Cox, Laurel Duval, L. M. Jeffers, R. C. Miller, E. L. Morris, Philip Rothrock, C. A. Russell, Levi M. Thomas, and F. B. Wise, assistants.

AGRICULTURAL TECHNOLOGY, COTTON STANDARDIZATION, AND PAPER-PLANT INVESTIGATIONS.

N. A. COBB, *technologist in charge.*

These investigations deal with the improvement of technological methods in crop production: the standardization, measurement of staple, and ginning of cotton; the testing of plants believed to be suitable for paper manufacture; the investigation of fiber plants likely to prove of value in the United States; and the encouragement of fiber-plant industries.

Scientific staff.—L. H. Dewey, botanist in charge of fiber-plant investigations; Charles J. Brand, physiologist in charge of paper-plant investigations and cooperative cotton handling and marketing; W. E. Chambers, D. E. Earle, and Albert Mann, experts.

BIOPHYSICAL INVESTIGATIONS.

LYMAN J. BRIGGS, *biophysicist in charge.*

This laboratory is organized for the study of physical problems arising in connection with the various lines of work conducted by the Bureau of Plant Industry. Attention is being chiefly directed at present to biophysical problems in dry-land agriculture, the water requirements and nutrition of crop plants, and the influence of the physical environment on crop growth.

Scientific staff.—J. O. Belz, assistant; J. W. McLane, and Julia R. Pearce, laboratory assistants.

SEED-TESTING LABORATORIES.

EDGAR BROWN, *botanist in charge*.

These laboratories are charged with the examination of samples of commercial seeds for the presence of adulteration, and with a general propaganda in the interest of pure seed for the farmer. The work is conducted both in Washington, D. C., and at cooperative laboratories in the field.

Scientific staff.—F. H. Hillman, assistant botanist; W. L. Goss, George T. Harrington, Emma F. Sirrine, Lovina Merick, Emma S. Doyle, Bertha C. Hite, Alma L. Carpenter, Anna M. Lute, James M. Moss, jr., and Cora Jacobs, scientific assistants.

CEREAL INVESTIGATIONS.

CARLETON R. BALL, *acting cercalst in charge*.

This work deals with culture, adaptation, improvement, and uses of cereal crops. The study and prevention of the diseases affecting cereals are also a part of the investigations.

Scientific staff.—C. E. Chambliss, H. B. Derr, H. V. Harlan, and C. W. Warburton, agronomists; A. A. Potter, assistant pathologist; John F. Ross and D. E. Stephens, farm superintendents; E. L. Adams, P. V. Cardon, Manley Champlin, V. L. Cory, E. M. Johnston, Clyde McKee, and T. R. Stanton, scientific assistants; F. R. Babcock, assistant in grain investigations; L. C. Aicher, L. R. Breithaupt, L. C. Burnett, J. A. Clark, N. C. Donaldson, J. M. Jenkins, F. A. Kiene, jr., Clyde E. Leighty, and J. D. Morrison, agents.

CORN INVESTIGATIONS.

C. P. HARTLEY, *physiologist in charge*.

The leading object of the work of this office is to make the corn crop more profitable to the farmers of the United States. The investigations are conducted throughout the United States on farms of members of corn improvement clubs and of interested farmers. The investigations cover the principal factors that influence the quantity, the quality, and the profitableness of acre production.

Scientific staff.—Ernest B. Brown and Curtis H. Kyle, assistant physiologists; L. L. Zook, J. G. Willier, and Fred D. Richey, scientific assistants.

TOBACCO AND PLANT NUTRITION INVESTIGATIONS.

W. W. GARNER, *physiologist in charge*.

The tobacco work has to do with the improvement of tobacco by hybridization and selection, the improvement of methods of growing and handling the crop, the combating of diseases, and the general study of the tobacco-growing industry. Experiments and demonstrations in the growing of tobacco in rotation with farm crops are features of the work.

The plant nutrition studies relate to some of the broad problems concerned in the growth and development of crop plants as affected by nutrition.

Scientific staff.—E. H. Mathewson and G. W. Harris, crop technologists; Otto Olson, E. G. Beinhart, D. E. Brown, W. M. Lunn, E. G. Moss, assistants in tobacco investigations; J. E. Blohm, special agent; B. F. Scherffius, J. S. Cuninghame, experts; Charles W. Bacon, assistant physiologist; H. A. Allard and Charles L. Foubert, scientific assistants.

FORAGE CROP INVESTIGATIONS.

CHARLES V. PIPER, *agrostologist in charge*.

The work of this office covers various phases of forage-crop investigations, including the methods of forage-crop production, the development and dissemination of new valuable varieties of forage crops, the extension of forage crops into sections where they are adapted but are grown only to a limited extent, and cooperation in the introduction and extension of new forage crops.

Scientific staff.—J. M. Westgate, agronomist; R. A. Oakley and H. N. Vinall, assistant agrostologists; M. W. Evans, Roland McKee, W. J. Morse, G. E. Thompson, and A. B. Cron, scientific assistants; S. M. Tracy, special agent; and G. W. Morgan, agent.

ALKALI AND DROUGHT-RESISTANT PLANT-BREEDING INVESTIGATIONS.

T. H. KEARNEY, *physiologist in charge.*

The object of this work is to investigate the alkali resistance of crop plants; to develop, by breeding and selection, strains of field crops which will be more resistant to drought than the varieties now obtainable, and to study the physiology of drought resistance. This work is conducted in close cooperation with the other branches of the bureau concerned with the upbuilding of agriculture in the West and Southwest.

Scientific staff.—H. L. Shantz, physiologist; and A. C. Dillman, assistant physiologist.

TAXONOMIC AND RANGE INVESTIGATIONS.

FREDERICK V. COVILLE, *botanist in charge.*

This office maintains the economic collections of cultivated plants and is engaged in systematic studies of grasses and other economic plants, the compilation of information on native plants for publication, the testing of wild and little-known plants, and experiments with a view to the improvement of the grazing areas on the national forests.

Scientific staff.—A. S. Hitchcock, systematic agrostologist; W. E. Safford, assistant curator; P. L. Ricker, Ivar Tidestrom, and A. H. Moore, assistant botanists; E. L. Greene, expert; Agnes Chase, scientific assistant; and Alice Henkel, assistant.

FARM MANAGEMENT INVESTIGATIONS.

W. J. SPILLMAN, *agriculturist in charge.*

This office studies the details of farm practice. Its main object is to improve farm practice by introducing better business methods and by applying the principles of science wherever they are known. The types of farming prevailing in the various sections of the country are being studied, and demonstrations in the form of object lessons are being made in a number of localities, and also a detailed study of farm economics and business principles. Studies of range management and of the use of the cactus as a forage plant are also a part of the work.

Scientific staff.—D. A. Brodie, C. L. Goodrich, J. W. Froley, Levi Chubbuck, J. S. Cotton, David Griffiths, Byron Hunter, J. C. McDowell, C. B. Smith, agriculturists; O. H. Benson, G. A. Billings, M. A. Crosby, L. G. Dodge, J. A. Drake, L. W. Fluharty, C. E. Hoke, James M. Johnson, C. M. Long, H. B. McClure, A. D. McNair, H. A. Miller, Geo. E. Monroe, L. A. Moorehouse, A. B. Ross, F. D. Stevens, E. H. Thomson, S. M. Tracy, D. W. Working, assistant agriculturists; J. H. Arnold, C. M. Bennett, L. G. Connor, H. R. Cox, H. M. Dixon, W. C. Funk, C. M. Hennis, H. N. Humphrey, C. E. Ladd, C. H. Miller, Oscar A. Juve, O. S. Rayner, F. E. Robertson, A. G. Smith, W. R. Humphries, E. A. Stanford, M. J. Thompson, scientific assistants; H. H. Mowry, assistant; J. S. Ball, Lillian Church, assistants in farm accounting; E. O. Wooten, assistant curator; Harry Thompson, expert; J. H. Barron, L. B. Bassett, E. L. Currier, H. W. Gilbertson, G. P. Scoville, agents; C. L. Feldkamp, library assistant.

FARMERS' COOPERATIVE DEMONSTRATION WORK.

BRADFORD KNAPP, *special agent in charge.*

This work consists of practical demonstrations in those parts of the cotton-growing territory infested with, or likely to be infested with, the boll weevil. These demonstrations have as their objects the raising of cotton under boll-weevil conditions, diversification of crops, and the improvement of cultural methods in order to show the farmers how best to meet the new conditions brought about by the advent of the boll weevil.

Staff.—J. A. Evans, O. B. Martin, W. B. Mercier, H. E. Savely, W. W. Long, general agents; W. D. Bentley, J. L. Quicksall, W. F. Procter, Mason Snowden, C. W. Watson, R. S. Wilson, B. L. Moss, H. D. Tate, E. Gentry, A. S. Meharg, W. L. English, C. R. Hudson, and T. O. Sandy, State agents.

DRY-LAND AGRICULTURE INVESTIGATIONS.

E. C. CHILCOTT, *agriculturist in charge*.

This work has reference to the development of proper cultural methods for the growing of crops in the semiarid regions of the West, especially in that portion known as the Great Plains Area. The objects are to determine the best methods of soil preparation and crop rotation for the conservation of moisture and the maintenance of humus in the soil.

Scientific staff.—J. S. Cole, expert; Fritz Knorr, J. M. Stephens, O. J. Grace, W. D. Griggs, F. L. Kelso, and J. E. Mundell, farm superintendents; W. W. Burr, C. A. Burmeister, E. F. Chilcott, R. W. Edwards, A. L. Hallsted, L. E. Hazen, O. R. Mathews, H. C. McKinstry, M. Pfaender, C. H. Plath, W. M. Osborn, W. O. Whitcomb, and J. C. Thysell, assistants.

WESTERN IRRIGATION AGRICULTURE.

CARL S. SCOFIELD, *agriculturist in charge*.

This work is concerned with the development of profitable agriculture on the lands to be placed under irrigation in the western United States, and also with the testing of various crops suited for growth under irrigation. The work is conducted in cooperation with a number of the investigational offices of the bureau.

Scientific staff.—F. D. Farrell, agronomist; F. B. Headley, assistant agriculturist; A. M. Hawley, C. J. Heisey, and W. E. Townsend, experts; Beyer Aune, Dan Hansen, S. H. Hastings, J. P. Irish, jr., and W. A. Peterson, farm superintendents; R. E. Blair, Vincent Fulkerson, J. A. Holden, C. R. Letteer, Argyle McLachlan, C. E. Peterson, and J. M. Spain, assistants.

POMOLOGICAL COLLECTIONS.

G. B. BRACKETT, *pomologist in charge*.

This office is charged with the maintenance of economic collections of pomological material, the identification and description of fruit varieties, the simplification of nomenclature, the compilation of data pertaining to the history (origin and distribution) of the varieties of our cultivated fruits, and the collection and dissemination of general information regarding the fruit interests of the United States.

Scientific staff.—E. R. Lake, assistant pomologist; C. P. Close, scientific assistant.

FIELD INVESTIGATIONS IN POMOLOGY.

A. V. STUBENRAUCH, *expert in charge*.

These investigations are concerned with the improvement of methods of growing, handling, shipping, storing, and marketing perishable fruits. The work is subdivided into fruit-marketing investigations, fruit-transportation and storage investigations, fruit-district investigations, viticultural investigations, nut-culture investigations, pomological breeding investigations, including the improvement of fruits by bud selection, and miscellaneous investigations bearing on the development of the fruit industry.

Scientific staff.—H. P. Gould and G. C. Husmann, pomologists; A. D. Shamel, physiologist; G. H. Crawford, jr., S. J. Dennis, A. W. McKay, C. G. Patten, C. S. Pomeroy, H. J. Ramsey, and Richard Schmidt, experts; George M. Darrow, Charles Dearing, George W. Dewey, W. F. Fletcher, K. B. Lewis, C. W. Mann, B. B. Pratt, and Leo B. Scott, scientific assistants; F. L. Husmann, viticultural superintendent; and C. A. Reed, special agent.

EXPERIMENTAL GARDENS AND GROUNDS.

E. M. BYRNES, *assistant in charge.*

This office is charged with the care and ornamentation of the department grounds, the maintenance of greenhouses and plant collections, and the propagation of plants for distribution and for other purposes. Experimental work with florists' crops is also being conducted in the greenhouses.

HORTICULTURAL INVESTIGATIONS AND ARLINGTON EXPERIMENTAL FARM.

L. C. CORBETT, *horticulturist in charge.*

The horticultural investigations are carried out in the various market-garden and truck-growing sections of the country, as well as at Arlington, and include the testing and improvement of the standard commercial garden vegetables, including potatoes and peanuts. The forcing of flowers and vegetables, as well as the horticultural greenhouse problems incident to the industry, are also subjects under investigation.

The Arlington Farm is the field laboratory at Washington for the Bureau of Plant Industry, as well as for other bureaus of the department. Widely varying field tests are conducted on the farm.

Scientific staff.—William Stuart and D. N. Shoemaker, horticulturists; W. R. Beattie and E. C. Butterfield, assistant horticulturists; H. C. Thompson and J. W. Jones, experts; N. H. Grubb, R. P. Caruthers, and W. V. Shear, scientific assistants.

CONGRESSIONAL SEED DISTRIBUTION.

(Directed by chief of bureau.)

The work consists of the securing, packeting, and mailing of the quantities of vegetable, flower, and other seeds and plants necessary for congressional distribution, as well as the testing, propagation, and distribution of improved seed of various crops.

Staff.—Leon M. Estabrook, executive assistant, in general charge; Oliver F. Jones, executive clerk; J. E. W. Tracy, assistant superintendent.

FOREIGN SEED AND PLANT INTRODUCTION.

DAVID FAIRCHILD, *agricultural explorer in charge.*

This branch of the bureau is concerned with the introduction and establishment of new plant industries. Promising new seeds and plants are secured both by agricultural exploration and by correspondence, and these are tested at the plant introduction gardens or through cooperation with other bureaus and offices of this bureau, experiment stations, experimenters, and private individuals. Investigations in plant propagation and in the development of certain plant industries are features of the work.

Scientific staff.—P. H. Dorsett and Peter Bisset, expert plant introducers; Frank N. Meyer, agricultural explorer; George W. Oliver, expert propagator; H. C. Skeels and R. A. Young, scientific assistants; Stephen C. Stuntz, botanical assistant; Robert L. Beagles, assistant farm superintendent, in charge of plant introduction garden, Chico, Cal.; Edward Simmonds, gardener, in charge of plant introduction garden, Miami, Fla.; John M. Rankin, assistant farm superintendent, in charge of Yarrow Plant-introduction Garden, Rockville, Md.; W. H. F. Gomme, assistant farm superintendent, in charge of plant introduction garden, Brooksville, Fla.; E. C. Green, pomologist, in charge of South Texas plant introduction investigations; Edward Goucher and J. H. Allison, experts.

FOREST SERVICE.

Forester, HENRY S. GRAVES; Associate forester, ALBERT F. POTTER.

The Forest Service administers, under the direction of the Secretary of Agriculture, the National Forests, with a gross area of 187,400,000 acres and an area exclusive of alienated lands within the boundaries of 167,000,000 acres; studies forest conditions and methods of forest utilization throughout the

United States, with a view to obtaining greater and more valuable yields of timber and promoting the best use of all forest resources; investigates the mechanical and physical properties of woods and the processes employed in the manufacture of forest products, in order to facilitate the fullest and most economical use of the material which forests yield and to reduce the overdrain upon our forests created by an annual consumption greatly in excess of the annual growth; and gathers information concerning markets and market prices, the needs of the various wood-using industries and the supplies available to meet these needs, and the relation of forests to the public welfare generally.

In administering the National Forests the Forest Service protects them from fire and depredations; prescribes, through timber sales and the regulation of free use, the cutting methods under which the present stand (estimated to total the equivalent of 587 billion board feet) may be harvested as needed; provides for forest renewal by natural reproduction on cut-over areas and by artificial methods extensively applied on burns and other denuded lands which will not reforest naturally; regulates grazing so as to secure as full and as beneficial use as possible of the forage crop, while preventing deterioration of the range and injury to forest growth or waterflows through overgrazing; devises and applies the means by which the productive power of the range may be increased and at the same time made to contribute most effectively to the prosperity of the stock industry, the upbuilding of the West, and the national food supply; and seeks to develop every form of occupancy and use along the lines which will result in the greatest public benefit.

The Forest Service also seeks to secure the introduction and practice of forest management and protection on State and private forests. Active cooperation with States in the protection of the headwaters of navigable streams from fire by organized patrol is carried on under the terms of the act of March 1, 1911. Advice is given to owners of woodlands on methods of utilization which will perpetuate and improve the forest growth rather than impair it, and to farmers and others who are in need of planted forest growth for protection or for wood supply. When necessary, field investigations are made in order to secure data required for such advice; usually, however, the Forest Service is, as a result of its past investigations, now able to give advice without undertaking new inquiries.

The Service conducts technical investigations in scientific forestry at seven experiment stations supplemented by regional studies of important commercial trees and forestry problems. These investigations aim to develop American silviculture along the lines required for immediate application in the practice of forestry in the United States.

Forest investigations in the field are supplemented by laboratory studies, which are conducted mainly in the Forest Products Laboratory at Madison, Wis. This work includes studies in the physical properties of wood, the drying of wood, strength tests, wood preservation, wood distillation, and the production of wood pulp and paper and of naval stores. Among the results which are being attained are the opening of new sources of supply for various industries, the utilization of every kind of wood for the purpose for which its intrinsic qualities best adapt it, and the reduction of waste in many forms.

The work of the Forest Service is organized under the office of the Forester, 5 branches, 6 districts, and 162 National Forests. The office of the Forester includes inspection, office of the editor, dendrology, and accounts. The branches are: Operation, which includes the offices of geography and maintenance; lands, which includes the offices of occupancy and claims; silviculture, which includes the offices of State cooperation, forest management in the East, and silvics; grazing; and products, which includes the office of wood utilization and the forest products laboratory. The six districts are maintained for purposes of National Forest administration, with a district forester in charge of each. Corresponding with the five branches in Washington are five offices in each district—operation, lands, silviculture, grazing, and products. Each of these offices is directly under the district forester, who in turn is responsible to the Washington branches and the Forester for the conduct of work in his district.

The five offices in each district direct the various lines of work on the National Forests. Each is in charge of a forest supervisor, with a corps of forest officers and assistants in special lines of work. The six districts and district headquarters are as follows:

District 1: National Forests in northern Idaho, Montana, North Dakota, the northwest corner of South Dakota, Minnesota, and Michigan, with headquarters at Missoula, Mont.

District 2: National Forests in Colorado, Kansas, Nebraska, the greater part of South Dakota, and eastern and central Wyoming, with headquarters at Denver, Colo.

District 3: National Forests in most of Arizona and all of New Mexico, Oklahoma, Arkansas, and Florida, with headquarters at Albuquerque, N. Mex.

District 4: National Forests in Utah, northwestern Arizona, most of Nevada, southern Idaho, and western Wyoming, with headquarters at Ogden, Utah.

District 5: National Forests in California and western Nevada, with headquarters at San Francisco, Cal.

District 6: National Forests in Washington, Oregon, northwestern California, and Alaska, with headquarters at Portland, Oreg.

INSPECTION.

(Under the direction of the Forester and Associate Forester.)

D. D. BRONSON, *general inspector*.

Inspection covers only questions of special importance on the National Forests and elsewhere in the work of the Forest Service.

OFFICE OF THE EDITOR.

HERBERT A. SMITH, *editor*; FINDLEY BURNS, *in charge of technical review*.

This office has charge of all the editorial and educational work of the service, including the review and proof reading of its publications and forms, cooperation with teachers, officers of public instruction, and others, to bring home the lessons of forestry through school instruction and other channels, and the preparation, installation, and care of forest exhibits. The care and use of the lantern-slide collection also comes under this office.

DENDROLOGY.

GEORGE B. SUDWORTH, *dendrologist*; CLAYTON D. MELL, *assistant dendrologist*.

This line of work comprises all matters pertaining to the life history of forests and forest trees, including technical studies of the distinguishing characteristics of native and exotic tree species and their woods. Special attention is given to the identification of trees and their products and to determining the geographical and commercial distribution of tree species and forests, as well as to the investigation of forest resources, which include investigations of forest areas to determine the kinds, quality, and quantity of timber available.

ACCOUNTS.

(Division of Accounts and Disbursements, Forest Service branch.)

M. E. FAGAN, *chief*; E. A. MELZAR, *assistant chief*.

This office is in charge of all fiscal matters pertaining to the Forest Service—general bookkeeping, controlling accounts, allotments and liabilities, and all operations of district fiscal agents. Appointments, promotions, furloughs, leave without pay, and annual leave of members of the service whose headquarters are at Washington, as well as letters of authorization, are prepared and recorded in this office. Payment of the salaries and expenses of those engaged in investigative work on the National Forests and whose headquarters are at Washington, and the compilation of the reports of the district fiscal agents, which need to be combined before being submitted to the Treasurer or the Secretary of Agriculture are also handled by this office.

Branch of Operation.

JAMES B. ADAMS, *assistant forester in charge*; FRANKLIN W. REED, *forest inspector*; G. G. ANDERSON, *administrative assistant*.

This branch has general supervision of the personnel, quarters, equipment, supplies, and of all permanent improvement work on the National Forests, and of the survey of the boundaries and changes in area of the forests. In addition it includes the following offices:

GEOGRAPHY.

FRED G. PLUMMER, *chief*.

The work of this office includes the collection and preservation of maps, the compilation of general maps and folios for the Forest Atlas, and the supervision of the engraving and printing of maps and diagrams. The tabulation of forest statistics is included in the duties of this office. Upon the request of forest officers and independently it also collects and records the status of lands within the National Forests. The photographic work of the service, including the manufacture of transparencies, bromides, and lantern slides, also comes under geography.

MAINTENANCE.

GEO. A. BENTLEY, *chief*.

The work of this office includes all matters relating to the care of quarters and the custody of supplies, furniture, instruments, and other equipment in Washington, D. C. It maintains a sufficient force of stenographers to do all stenographic and mimeographic work in the Washington office which is not done by the office stenographers and to furnish details of stenographers to other offices in the absence of those regularly assigned.

Branch of Lands.

JAMES B. ADAMS, *assistant forester in charge*; O. C. MERRILL, *chief engineer*.

This branch has general supervision of all matters relating to the application of the public land laws to the lands within the National Forests and includes the following offices:

CLAIMS.

J. I. PARKER, *in charge*.

The work of this office includes all matters relating to claims on the National Forests prior to proceedings before registers and receivers on hearings ordered. The office cooperates with the office of the Solicitor in procuring necessary evidence to sustain the department's contests and also administers all matters relating to the act of June 11, 1906, and the acquisition of administrative sites.

OCCUPANCY.

CHARLES H. SQUIRE, *in charge*.

The work of this office comprises all matters relating to the occupancy of national forest land, including the handling of all routine connected with the occupancy and use of forest land for hydro-electric power purposes and of all reports to the Department of the Interior upon rights of way granted by the Secretary of the Interior upon such lands.

Branch of Silviculture.

W. B. GREELEY, *assistant forester in charge*; EARLE H. CLAPP, *forest inspector*.

Through the district foresters, the Branch of Silviculture has supervision of timber sales, timber and fire trespass, and reforestation on the National Forests, and of the preparation of working plans for their better administration. It conducts forest investigations throughout the entire United States and cooperates with the States and private owners in fire protection and the practice of forestry. It includes the following offices:

STATE COOPERATION.

J. G. PETERS, *chief*.

The office of State cooperation, in cooperation with the States, investigates forest conditions and suggests needed State legislation and forest policies. It prepares digests of State and forest-fire laws with a view to standardizing the principles of State legislation on these subjects. It conducts cooperation with

a number of States, under the Weeks law (act of March 1, 1911), in the protection of the watersheds of navigable streams, directs expenditures for this purpose, and inspects the work done in the field.

FOREST MANAGEMENT IN THE EAST.

The office of forest management in the East deals with the practical management of forests in the eastern part of the United States. It furnishes information to owners regarding the care of their woodlands and gives advice as to the best species of trees to plant.

SILVICS.

RAPHAEL ZON, *chief*; S. T. DANA, *assistant chief*.

The office of silvics deals mainly with the scientific problems underlying the practical management of national and private forests. It directs the work on the National Forest experiment stations. It investigates the factors controlling the distribution of forests and forest trees throughout the United States, the relation of forests to stream flow and climate, the conditions under which natural regeneration of cut-over, burned-over, or otherwise denuded areas takes place, and the species and methods adapted to use in artificial forestation under varying site conditions. It also studies the different requirements which commercial or otherwise important species have upon climate, soil, moisture, and light. The library of the Forest Service is connected with this office. It contains 12,200 books and pamphlets on forestry and allied subjects, and 29,641 photographs of trees and forest conditions.

Branch of Grazing.

ALBERT F. POTTER, *associate forester in charge*; LEON F. KNEIPP, *assistant forester*; WILL C. BARNES, *inspector of grazing*.

The branch of grazing has, through the district foresters, general supervision of the range in the National Forests. When the number of stock to be allowed on each National Forest has been determined by the Secretary of Agriculture the branch of grazing establishes the yearlong grazing fee to be charged for each class of stock, and authorizes the grazing of sheep and goats upon those portions of the forests which in the judgment of the Forester may properly be opened to them. It also has charge of all scientific investigations which concern the best use of the forage resources of the National Forests.

Branch of Products.

MCGARVEY CLINE, *in charge*; H. F. WEISS, *assistant director*.

LABORATORY.

MCGARVEY CLINE, *director*.

A forest-products laboratory is maintained in cooperation with the University of Wisconsin, at Madison, Wis. The laboratory conducts the following classes of experimental investigations in the utilization of forest products: (1) The investigation of problems in experimental research; (2) experimental work in cooperation with commercial operations to verify laboratory experiments on a commercial scale; (3) cooperation with individuals or companies to assist them in applying principles and processes of proved commercial value.

The lines of work pursued are as follows:

Wood preservation, which includes the study of all problems related to the impregnation of wood with preservatives and other substances.

Wood chemistry, which covers all work bearing on the chemical utilization of forest products. Wood distillation, paper pulp, and other fiber products, chemical analyses of creosotes, turpentine, etc., are the principal lines.

Timber tests, including the charge of all tests to determine the strength and other mechanical properties of different woods.

Technology, covering the study of the microscopic structure of wood, methods of seasoning and drying it, and other problems of a purely technical character.

Maintenance, which includes filing, computing, the purchase of supplies, and general care of the entire laboratory.

WOOD UTILIZATION.

O. T. SWAN, *in charge*.

The work of this office is to further by statistical investigation the best and most economical use of materials which come from the forest. The work consists of studies of the wood-using industries of various States, the study of woods used in manufacture, and of the methods of disposing of mill waste, the collection of statistics on the price of lumber at the mill and at the principal distributing markets of the country, and the study of specifications and grading rules. The office also secures statistics of forest products of importance to the experimental work of the Service and studies the movements of lumber to and from the principal lumber markets.

This office also represents the branch of products in Washington, and handles the products work in the East.

Acquisition of Lands Under the Weeks Law.

WM. L. HALL, *assistant forester, in charge*; K. W. WOODWARD, *in charge examination of lands*.

This office designates the areas where lands are to be purchased, receives proposals, examines lands, conducts tentative negotiations, and prepares recommendations to the Secretary of Agriculture and the National Forest Reservation Commission on lands to be acquired under the act of Congress, approved March 1, 1911, for the protection of the watersheds of navigable streams.

Districts.

DISTRICT 1.—F. A. SILCOX, *district forester*; E. W. KRAMER, *district engineer*. Office at Missoula, Mont.

DISTRICT 2.—SMITH RILEY, *district forester*; T. W. NORCROSS, *district engineer*. Office at Denver, Colo.

DISTRICT 3.—A. C. RINGLAND, *district forester*; T. W. NORCROSS, *district engineer*. Office at Albuquerque, N. Mex.

DISTRICT 4.—E. A. SHERMAN, *district forester*; J. P. MARTIN, *district engineer*. Office at Ogden, Utah.

DISTRICT 5.—COERT DUBOIS, *acting district forester*; WALTER L. HUBER, *district engineer*. Office at San Francisco, Cal.

DISTRICT 6.—GEORGE H. CECIL, *district forester*; W. E. HERRING, *district engineer*. Office at Portland, Oreg.

OPERATION.

DISTRICT 1.—J. F. PRESTON, *assistant district forester*.

DISTRICT 2.—FRED W. MORRELL, *assistant district forester*.

DISTRICT 3.—A. O. WAHA and A. S. PECK, *assistant district foresters*.

DISTRICT 4.—A. C. MCCAIN, *assistant district forester*.

DISTRICT 5.—ROY HEADLEY, *assistant district forester*.

DISTRICT 6.—C. H. FLORY, *assistant district forester*.

The office of operation in each district has charge of the protection of the National Forests, the organization, maintenance, and equipment of the personnel, and the supervision of all permanent improvement work. It recommends to the district forester changes in the area of existing forests and the creation of new forests; and it has charge of the special-use business of the district and the maintenance of files and other equipment.

SILVICULTURE.

DISTRICT 1.—R. Y. STUART and D. T. MASON, *assistant district foresters*.

DISTRICT 2.—S. L. MOORE, *assistant district forester*.

DISTRICT 3.—R. L. ROGERS, *forest examiner*.

DISTRICT 4.—OVID M. BUTLER, *assistant district forester*.

DISTRICT 5.—T. D. WOODBURY, *assistant district forester*.

DISTRICT 6.—F. E. AMES and C. S. JUDD, *assistant district foresters*.

The office of silviculture in each district has charge of the sale and free use of timber, of all planting work, and of all silvical studies on the National Forests.

within the district. It also has charge of all work within the district similar to that done on forest lands outside the districts by the offices of State cooperation and forest management in the East, at Washington.

GRAZING.

DISTRICT 1.—C. H. ADAMS, *assistant district forester*.

DISTRICT 2.—J. W. NELSON, *assistant district forester*.

DISTRICT 3.—JOHN KERR, *assistant district forester*.

DISTRICT 4.—HOMER E. FENN, *assistant district forester*.

DISTRICT 5.—JOHN H. HATTON, *assistant district forester*.

DISTRICT 6.—T. P. MCKENZIE, *assistant district forester*.

The office of grazing in each district has supervision of all grazing matters upon the National Forests under the allowances, periods, rates, and general range divisions established by the branch of grazing according to existing regulations.

PRODUCTS.

DISTRICT 5.—C. S. SMITH, *assistant district forester*.

DISTRICT 6.—J. B. KNAPP, *assistant district forester*.

The office of products in each district has charge of the work within the district similar to that done outside the districts by the offices of wood utilization and the forest-products laboratory.

LANDS.

DISTRICT 1.—R. H. RUTLEDGE, *assistant district forester*.

DISTRICT 2.—C. J. STAHL, *assistant district forester*.

DISTRICT 3.—FRANK C. POOLER, *assistant district forester*.

DISTRICT 4.—T. C. HOYT, *assistant district forester*.

DISTRICT 5.—L. A. BARRETT, *assistant district forester*.

DISTRICT 6.—C. J. BUCK, *assistant district forester*.

BUREAU OF CHEMISTRY.

Acting chief, R. E. DOOLITTLE; F. L. DUNLAP, *associate chemist*; W. D. BIGELOW, *assistant chief of bureau*; F. B. LINTON, *chief clerk*; J. G. SHIBLEY, *supervisory clerk, interstate and import records*; G. O. SAVAGE, *editor*; A. E. DRAPER, *librarian*.

The Bureau of Chemistry is concerned primarily with questions of agricultural chemistry of public interest, analytical work and investigations under the food and drugs act, and other chemical investigations referred to it by the Government. Such investigations include studies on the effects of storage on foods, especially on drawn and undrawn poultry, eggs, etc., and physiological experiments to determine the nutritive value of certain foods and the effect of substances added to foods and beverages on health and digestion. The examination of samples of foods and drugs under section 4 of the food and drugs act, June 30, 1906, constitutes an important part of the work. The chief of the bureau is chairman and the associate chemist is secretary of the Board of Food and Drug Inspection (see p. 48), which conducts or has supervision of all hearings afforded interested parties, as provided in section 4 of the food and drugs act, and passes on questions of importation of foods and drugs, under section 11 of the same act. Inquiries of value to individuals only, or to a small group of individuals, can not be considered; in general, miscellaneous samples can not be examined. The bureau, by direction of the Secretary, has charge of all the chemical work of the department not otherwise provided for by law.

ENFORCEMENT OF THE FOOD AND DRUGS ACT.

While all the divisions and laboratories cooperate to a greater or less degree in the analytical work contingent upon the inspection of foods and drugs, the bureau organization directly concerned in the administration of the law is as follows:

The Division of Foods is in charge of the analytical work on foods performed at the central bureau in the enforcement of the law, makes check analyses on

doubtful samples referred to it by the food and drug inspection laboratories, and renders the final decision as to the analytical results, so far as the Bureau of Chemistry is concerned. In general, this work is done in the Washington Food Inspection Laboratory of the Division of Foods, L. M. Tolman, chief. The Division of Drugs performs the same work in regard to drugs, medicines, etc., and the Miscellaneous Division has charge of the water and cattle food work under the law.

The Chief of the Division of Foods, who is also assistant chief of bureau, installs the inspection laboratories and has charge of the administrative detail in connection with their work, although the chiefs of these laboratories report directly to the chief of bureau, who is charged by the Secretary with the details of bureau administration involved. Food and drug inspection laboratories have been established at the following points: Boston, B. H. Smith, chief; Buffalo, W. L. Dubois, chief; Chicago, A. L. Winton, chief; Cincinnati, B. R. Hart, chief; Denver, R. S. Hiltner, chief; Detroit, H. L. Schulz, chief; Galveston, G. M. Bartlett, acting; Honolulu, Hawaii, A. W. Hansen, acting; Kansas City, Mo., F. W. Liepsner, chief; Nashville, R. W. Balcom, chief; New Orleans, W. J. McGee, chief; New York, A. W. Ogden, acting; Omaha, S. H. Ross, chief; Philadelphia, C. S. Brinton, chief; Pittsburgh, M. C. Albrech, chief; Portland, Oreg., A. L. Knisely, chief; St. Louis, D. B. Bisbee, chief; St. Paul, A. S. Mitchell, chief; San Francisco, R. A. Gould, chief; San Juan, P. R., A. E. Taylor, acting; Savannah, W. C. Burnet, chief; Seattle, H. M. Loomis, chief.

OFFICE OF CHIEF INSPECTOR.

The corps of 40 inspectors under a chief inspector, W. G. Campbell, who reports directly to the chief of bureau, has headquarters at Washington, and the inspectors receive their directions from and make their reports to the chief inspector at that point. The taking of samples for analysis constitutes their chief duty, though special investigations in collaboration with the chemists are also made, and factories where articles of food or drugs are prepared are also inspected.

DIVISION OF FOODS.

W. D. BIGELOW, *chief*.

Food inspection laboratory: L. M. TOLMAN, *chief*. *Assistants*: M. BOYLE, A. M. DOYLE, E. H. GOODNOW, WM. E. HILLYER, M. J. INGLE, R. C. KENT, L. C. MITCHELL, J. I. PALMORE, J. G. RILEY, A. L. SULLIVAN, and W. C. TABOR.

Food technology laboratory: E. M. CHACE, *chief and assistant chief of division*. *Assistants*: A. W. BROOMELL, C. O. DODGE, and C. P. WILSON.

Oil, fat, and wax laboratory: H. S. BAILEY, *chief*. *Assistant*: L. B. BURNETT. The assistants working directly under the chief of the division are P. B. DUNBAR, H. C. GORE, R. W. HILTS, J. M. JOHNSON, H. E. PATTON, and E. L. P. TREUTHARDT.

The Division of Foods is charged with the food investigations made by the bureau, and the laboratories named were created therein on July 1, 1908. In the past much work has been done with various kinds of food purchased in the open market, in order to determine their purity and the character of adulteration commonly practiced. Careful attention has long been given to this subject under the provisions of the appropriation act authorizing the Bureau of Chemistry to investigate the adulteration, false labeling, and false branding of food products.

Aside from the other inquiries mentioned, the Division of Foods studies analytical methods necessary for the examination of food. This work is partly done in collaboration with the Association of Official Agricultural Chemists, of which the chief of the division is the secretary. Special studies are made from time to time of the influence of methods of manufacture and other conditions upon the composition and wholesomeness of food with respect to the enforcement of the food and drugs act. Among the subjects now under investigation are the following: The preparation of by-products from waste citrus fruits; the study of the changes in composition of cider and other saccharine products in the manufacture of vinegar; the handling and shipment of oysters; the influence of tin receptacles and of lacquers used for lining them on the character and composition of food; the composition of various varieties of soy beans and the character of the oil produced from them; and the determination of the character and quantity of the various organic acids in different types of foods.

H. C. Gore is in charge of special studies on fruits and fruit products conducted in cooperation with the Bureau of Plant Industry. The principal subjects of study at present are as follows: The preparation of unfermented juices from apples, grapes, and the small fruits; the preparation of sugared, dried pineapple; and the treatment of Japanese persimmons by a modification of the Japanese method for rendering them nonastringent; studies on the respiration and composition of fruit, and the application of the data obtained thereby to problems of transportation and storage.

The work in connection with the enforcement of the food and drugs act, June 30, 1906, naturally divides itself into two portions: First, the inspection of foods and drugs sold in the District of Columbia and the Territories, or shipped in interstate commerce; second, the inspection of foods imported into the United States from foreign countries. The samples of foods collected in the vicinity of Washington are examined in the food-inspection laboratory of the Division of Foods, in which laboratory the results of the branch laboratories on condemned samples, whether imported or domestic, are also checked, with the exception of flavoring extracts, which are examined in the food technology laboratory.

DIVISION OF DRUGS.

L. F. KEBLER, *chief*.

Drug inspection laboratory, G. W. HOOVER, *chief*.

Synthetic products laboratory, W. O. EMERY, *chief*.

Essential oils laboratory, E. K. NELSON, *chief*.

Pharmacological laboratory, WM. SALANT, *chief*.

This division has for its object the study of the properties, composition, and quality of drugs and medicinal preparations of all kinds. A large part of its work consists in the study of official and new methods and the acquisition of data which may lead to more satisfactory and accurate analytical processes, especially for testing potent plant drugs and products derived from them. The chief of the Drug Division, as referee on medicinal plants and drugs of the Association of Official Agricultural Chemists, has undertaken a collaborative study of drug assay methods; as associate referee the chief of the synthetic products laboratory is studying methods for determining synthetic chemicals in various combinations; and an investigation of methods for analyzing medicated soft drinks is being made in the Drug Inspection Laboratory. Many samples of manufactured pharmaceutical preparations have been examined for the council of pharmacy and chemistry of the American Medical Association. The several departments of the Government submit samples of drug products to this division for examination. All chemical supplies bought by the Bureau of Chemistry are examined in the Division of Drugs previous to their acceptance; examinations of supplies are also made for the general supply committee of the Government. Analyses of medicinal plants and other products are made for the Bureau of Plant Industry, medicines are examined for the War Department, and investigations are conducted in collaboration with the Bureau of Entomology and the Division of Foods of this bureau.

A careful study of those medicinal remedies included in the United States Pharmacopœia for which there are no methods of analysis or recognized standards at present, and of some remedies not so recognized, is now in progress for the purpose of developing methods of analysis and acquiring data upon which uniform methods and standards of composition, quality, and strength may be based. The change of composition or deterioration, due to age or other causes, of crude drugs and finished products is also studied. Investigations of all drug products or medicinal agents for adulteration and misbranding, as provided in section 4 of the food and drugs act, June 30, 1906, are made in this division or under its supervision, and similar investigations are also conducted in cooperation with the American Medical Association. A number of pharmaceutical chemists are stationed at the branch laboratories of the Bureau of Chemistry for the examination of drug products imported into the United States.

The following assistants comprise the scientific force of the Division of Drugs: H. E. Buchbinder, V. K. Chesnut, C. C. Le Febvre, H. B. Mead, E. C. Merrill, F. P. Morgan, A. G. Murray, S. Palkin, C. E. Parker, J. K. Phelps, J. B. Rieger, B. H. St. John, and C. D. Wright.

MISCELLANEOUS DIVISION.

J. K. HAYWOOD, *chief*.

Water laboratory, W. W. SKINNER, *chief*; assistants, W. D. COLLINS, D. C. DYER, C. M. HARGRAVE, J. B. REED, and J. W. SALE.

Cattle-food and grain laboratory, G. L. BIDWELL, *acting chief*; assistants, C. E. GOODRICH and H. L. WALTER.

Insecticide and fungicide laboratory, C. C. McDONNELL, *chief*; assistants, O. D. KNIGHT, J. P. MEHLIG, W. J. MORGAN, W. B. POPP, R. C. ROARK, C. M. SMITH, and H. A. WHITMAN.

Trade wastes laboratory, *under chief of division*; assistant, W. D. LYNCH.

This division and the four laboratories therein were formally organized by the Secretary under date of July 1, 1908, marking the logical growth and expansion of several lines of work, which were originally authorized in the insecticide and water laboratory and reorganized under order of the Secretary July 1, 1905, as the miscellaneous laboratory. The principal lines of work are the examination and study of waters, cattle foods, forage crops, grains, insecticides and fungicides, trade wastes, and certain hygienic problems; also such miscellaneous chemical work of the Bureau of Chemistry and of other bureaus and divisions of various departments of the Government as may be referred to this division and which does not properly belong to other established laboratories. The work on waters includes the chemical examination and study of mineral waters, irrigating waters, waters for sanitary, technical, and domestic purposes, and of the potable and medicinal waters found bottled on the market, for the purpose of securing data for use in connection with the enforcement of the food and drugs act of June 30, 1906. In collaboration with the office of Grain Standardization of the Bureau of Plant Industry, studies are being made of the changes in composition of grains due to storage and shipping; in collaboration with farm management investigations of the same bureau, studies are being made of the composition of range forage plants of the West. Cattle foods are studied in order to secure data for use in connection with the enforcement of the food and drugs act. There are being made, in collaboration with the Bureau of Entomology, experiments to determine the efficiency of certain insecticides and their effect upon foliage, and, in collaboration with several experiment stations, studies of more complete methods of analysis. Various chemical studies are also made of insecticides and fungicides for other bureaus of the department, and samples of the same are collected and examined for the purpose of enforcing the national insecticide act of 1910. Special investigations are being made of the effect of smelter fumes upon plants and animals and the injury to vegetation and soils by the contamination of irrigating waters by mining wastes.

CONTRACTS LABORATORY.

P. H. WALKER, *chief*.

The contracts laboratory examines materials purchased by the United States Department of Agriculture to determine their purity and compliance with specifications, and does similar work for the various other executive departments in Washington. The work in the laboratory consists largely of the examination of materials submitted with bids for contracts or furnished by contract to the various executive departments, and the preparation and criticism of specifications for miscellaneous materials and investigations connected with the study of such materials. Important lines of investigation are the study of paints and paint materials in cooperation with the Bureau of Standards and the American Society for Testing Materials; investigation of the various brands of enamel-ware cooking utensils; investigation of methods of testing and quality of various kinds of rubber goods; investigation and examination of postmark canceling inks, inking pads, writing inks, typewriter ribbons, glue, glycerin, soap, lubricating oils, paints, varnishes, chemicals, dry colors, steel, alloys, chemical glassware; and various other miscellaneous supplies used by the different branches of the Government service.

Assistants in the laboratory are C. B. Bacon, E. W. Boughton, J. H. Bower, E. M. Dawson, jr., L. Feldstein, H. C. McNeil, G. C. Schmidt, F. W. Smither, and J. B. Wilson.

DAIRY LABORATORY.

G. E. PATRICK, *chief*.

The dairy laboratory examines dairy products of every description and studies methods for making such examinations. A large part of the work at present is in connection with the enforcement of the food and drugs act of 1906, in the examination of interstate samples of milk, butter, cheese, condensed milks, dried milks, malted milks, lactated foods, ice cream, and all other dairy products, to determine questions as to their adulteration and misbranding. Also under section 11 of the same act referring to imported foods, this laboratory examines many samples of imported dairy products, mostly cheese, taken by the customs officers at the various ports of entry. Samples of dairy products are also examined for the general supply committee of the Government, which committee contracts for food supplies for certain institutions. Samples received from other sources than the above are analyzed when such work promises to be of public benefit. The assistants in this laboratory are C. H. Biesterfeld, B. D. Johnson, and J. T. Keister.

FOOD RESEARCH LABORATORY.

M. E. PENNINGTON, *chief*.

The food research laboratory was formally organized July 1, 1908, though it had existed as a laboratory for special investigations since April, 1907. With its formal establishment has come a broadening of its field of activity, which has been very largely confined to the study—chemical, bacteriological, and histological—of foods preserved by low temperatures, milk, poultry, and eggs having been especially selected for study, directing attention chiefly to their decomposition and putridity during preparation, transportation, storage, and marketing, in connection with the execution of the food and drugs act. A special investigation of frozen and dried eggs and egg products has recently been inaugurated, to be conducted chiefly in the egg-breaking establishments and with the cooperation of the industry. The assistants in this laboratory are E. L. Connolly, A. D. Greenlee, J. S. Hepburn, M. Jenkins, H. C. Pierce, E. Q. St. John, and E. Witmer.

LEATHER AND PAPER LABORATORY.

F. P. VEITCH, *chief*.

This laboratory conducts investigations of tannins and tanning materials and their effects upon the strength and properties of leather, with a view to promoting the agricultural industries relating to the production of tannins and tanning materials and leather of a high quality; all technical problems of a chemical nature relating to the production of tannins and tanning products; all technical problems of a chemical nature relating to the production of leather; all chemical and physical investigations of papers in regard to their fitness for use in the Department of Agriculture, and other departments of the Government which may request such investigations; all technical problems of a chemical nature relating to the production of paper, with a view to promoting the agricultural industries connected with the production of the raw materials and to the improvement of the quality of papers made, and conserving paper-making materials; chemical-technical investigations of turpentines and resins for the purpose of determining their chemical nature and industrial uses and improving processes of production and the examination of turpentine and rosin under the food and drugs act; chemical-technical investigations of the destructive distillation of wood for the purpose of profitably utilizing waste and other woods, and to improve the quality and quantity of the products resulting therefrom. Papers, leathers, turpentines, resins, and textiles are also examined for the departments of the Government requesting such work, and specifications are prepared for the purchase of these articles. The assistants in this laboratory are M. G. Donk, H. P. Holman, J. L. Merrill, E. O. Reed, J. S. Rogers, C. F. Sanmet, and C. F. Speh.

MICROCHEMICAL LABORATORY.

B. J. HOWARD, *chief*.

This laboratory is charged with the microscopical and microchemical study of foods, drugs, cattle feed, paper and textile materials, miscellaneous agricul-

tural products, etc. Special attention is given to the histological study of fruits, spices, cereals, starches, and other agricultural products, both on account of its scientific interest and for the purpose of perfecting methods for detecting the adulteration of these products. The laboratory makes microscopical examinations of the urine and blood, in connection with the work of the bureau on the influence of preservatives on nutrition, and cooperates with other branches of the Government in work of this character. The assistants in this laboratory are Ettie A. Read, Berenice H. Silberberg, and C. H. Stephenson.

PHYSICAL CHEMISTRY LABORATORY.

C. S. HUDSON, *chief*.

This laboratory is charged with the investigation, from a physical chemical point of view, of problems related to the promotion of agriculture, including especially the study of the action of enzymes, and the development of new methods of chemical analysis by their use. The assistants are T. S. Harding and H. S. Paine.

SUGAR LABORATORY.

A. H. BRYAN, *chief*.

The sugar laboratory is charged with the chemical study of sugars and other carbohydrates. One of its duties is to examine the samples of cantaloupes and watermelons grown in collaboration with the agricultural experiment stations, to determine the effect of environment upon the sugar content. The chemical work relating to the domestic sirup industry—that is, the manufacture of table sirup from maple sap and maple sugar, sorghum, and sugar cane—is performed in the sugar laboratory, which also collaborates with the International Commission for Uniform Methods of Sugar Analysis in the standardization of international quartz plates for the control of polariscopes in different countries. Sugar beets grown in various parts of the country are also analyzed, and the effect of environment upon composition is studied. In this connection a study is made of the methods of determining sugar in beets, and an examination of beet molasses from a large number of sugar factories is in progress.

In collaboration with the apiary division of the Bureau of Entomology, this laboratory is investigating the chemical changes occurring during the storage of honey and those produced by heating. From a purely chemical standpoint this laboratory is revising and checking the tables for determining the various reducing sugars by the Fehling method. The work on lactose is about finished. The various methods of determining the sugar content of vegetable matter are receiving attention. In connection with the work of the contracts laboratory, dextrins, glucoses, starches, and other carbohydrate materials used by the Bureau of Engraving and Printing are examined, and all samples of sugars, starches, sirup, and molasses bought by the general supply committee. Many check analyses of honeys, sirups, and molasses samples under the food and drugs act are also made. The assistants in this laboratory are C. G. Church, G. J. Hough, S. F. Sherwood, and M. N. Straughn.

SECTION OF ANIMAL PHYSIOLOGICAL CHEMISTRY.

F. C. WEBER, *in charge*.

The work in this section includes metabolism and feeding experiments with foods, with organic and inorganic compounds, and with various carbohydrates. A complete study of infant foods and of the application of chemical methods to the determination of deterioration of animal foods and their unfitness for human consumption is being made. Collaborative work is being done on an investigation of the production and composition of gelatin and glue. Experimental work to improve the methods of analysis ordinarily employed in physiological chemistry is also undertaken. The assistants in this section are L. H. Almy, F. C. Cook, and H. W. Houghton.

SECTION OF BACTERIOLOGICAL CHEMISTRY.

G. W. STILES, Jr., *in charge*.

The investigations in bacteriological chemistry consists principally of the bacteriological examination of various food materials, together with the in-

spection of methods of handling and preparation, including milk, cream, ice cream, water, uncooked vegetables, shellfish, ketchups, and gelatin. The bacterial content of fowls, fish, eggs, beef, game, etc., as affected by storage, and of shell, frozen, and desiccated eggs, is also determined.

Considerable attention is devoted to testing the germicidal, antiseptic, and preservative value of certain drugs, chemicals, and fruit juices. Special consideration is also given to the identification and classification of the various bacteria, yeasts, and molds encountered in these investigations. Another line of work involves the examination of surgical dressings, gauzes, ligatures, etc., to determine their sterility. Cooperative work with other laboratories is done when required. The assistants in this section are C. Bates, S. Coopersmith, Ruth C. Greathouse, E. Le Fevre, and Maud L. Mason.

SECTION OF ENOLOGICAL TECHNOLOGY.

WM. B. ALWOOD, *in charge*.

The investigations conducted in this section fall naturally into two divisions, one dealing with the study of alcoholic ferments and the malorganisms associated with them in fruit musts, ciders, wines, and fruit by-products; the other with the composition of fruits and fruit juices and their fermented products and the critical examination of the residue which is left in the marc or pomace as a practically waste product.

In the fermentation study the pure cultures of the various organisms which occur in fruit musts or similar products, are separated. These organisms are isolated and their growth activities studied as alcoholic ferments or as malferments which destroy the sugar, alcohol, acids, etc., which it is desired to produce.

The pure cultures which have given the greatest promise in Europe have been studied and compared with those isolated in this country. Having thus determined the vital activities, methods of control are studied, that the cultures of pure ferments may be utilized to produce the desired qualities in products manufactured from fruit juices, and either to suppress or destroy undesirable organisms. Cellar tests on the use of the pure cultures in comparison with each other and with unyeasted must are made, and also tests on the use of sulphur in the fermenting and handling of fruit juices in the cellar. These studies are conducted at Charlottesville, Va. The assistants in the work are J. R. Eoff, jr., and B. G. Hartmann.

NITROGEN SECTION.

T. C. TRESBOT, *in charge*.

All nitrogen determinations for the several laboratories and divisions of this bureau, as well as many from other bureaus of the department, are made in the nitrogen section. Cooperative work with the Association of Official Agricultural Chemists is also done, looking to the improvement of the methods for making these determinations. The assistant is B. M. Hendrix.

SECTION OF PLANT PHYSIOLOGICAL CHEMISTRY.

J. A. LE CLERC, *chief*.

The investigation in vegetable physiological chemistry includes studies of the chemistry of growing plants, the composition of cereals, etc., grown under different conditions with respect especially to climate and environment, both in the greenhouse and in the fields; the study of changes, chemical, physical, and physiological, taking place in grain during germination, malting, and storage; of starch obtained from different sources for technical and food purposes; and studies in milling and breadmaking. Work is also done in collaboration with the various offices of the Bureau of Plant Industry on problems connected with plant-physiological chemistry. The assistants in this section are L. H. Bailey, J. F. Breazeale, B. R. Jacobs, C. C. Moore, H. L. Wessling, and P. A. Yoder.

SPECIAL INVESTIGATIONS.

(Under the direction of the chief of bureau.)

This bureau is especially studying the influence of environment upon the chemical composition of the sugar and starch producing plants. The need of

further study of these subjects is generally recognized and in its prosecution the bureau has the active collaboration of a number of State experiment stations as well as the cooperation of the Bureau of Plant Industry. Studies on cantaloupes are in progress by M. N. Straughn and C. G. Church.

Studies of methods for the determination of the age of foods, especially as applied to eggs, liquors, etc., are conducted by Herman Schreiber, together with investigations of methods for the determination of metals in foods and other miscellaneous studies of a similar nature.

A. W. Bitting, with headquarters at La Fayette, Ind., is conducting special investigations in regard to food preparation and manufacture, including the study of the sanitary condition of manufactories and canning establishments, the materials used, cleanliness in preparation, methods of treatment, and the keeping properties of the products. The effect of different methods of preserving foods on the character of the product is also considered, the work being directed chiefly along the line of sterilization by heat and preserving by hermetic closure. The causes of spoilage and its character are also determined. The work is conducted in part in cooperation with the canners and manufacturers.

BUREAU OF SOILS.

Soil physicist and chief of bureau, MILTON WHITNEY; *Chief clerk*, A. G. RICE.

The Bureau of Soils is charged with the investigation of the relation of soils to climate and organic life; with the investigation of the texture and composition of soils in field and laboratory; with the mapping of soils; with the study of the cause and prevention of the rise of alkali in the soils of irrigated districts, and of the relations of soils to seepage and drainage conditions.

In addition to circulars and bulletins, the bureau publishes annually the Report of the Field Operations of the Bureau of Soils. This contains a detailed description of the soils and of the agricultural conditions of the several areas surveyed, points out the present use of the soils, and discusses the possible changes and improvements in crops and methods of cultivation. Large-scale lithograph maps showing the distribution of the different kinds of soils accompany each report.

Lists of publications of the bureau may be obtained upon application.

LABORATORIES.

FRANK K. CAMERON, *scientist, in charge*.

The laboratories have under their charge the investigation of the chemical properties of soils in their relation to plant growth; the chemical examination and analysis of soil types and the study of their requirements with regard to fertilizers; the investigation of alkali problems, and the general direction of chemical methods in use by field parties. Investigations are in progress regarding the occurrence and extent of natural deposits and of industrial by-products containing fertilizer constituents and the extraction and utilization of these constituents. The laboratories are also charged with the investigation of the physical properties of soils and their economic bearing; the physical examination and mechanical analysis of soil types for soil-survey parties; the preparation and testing of apparatus used in field work; and the investigation from a physical standpoint of such mechanical soil problems as arise.

The scientific staff of the laboratory is as follows: H. Bryan, J. A. Cullen, R. O. E. Davis, C. C. Fletcher, E. E. Free, W. H. L. Fry, R. F. Gardiner, A. R. Merg, W. O. Robinson, W. H. Ross, J. G. Smith, W. H. Waggaman, L. A. Kolbe, R. B. Moore, W. B. Page, C. C. Stark, and J. W. Turrentine.

SOIL SURVEY.

CURTIS F. MARBUT, *scientist, in charge*.

The Soil Survey is charged with the surveying and mapping of the soils in selected areas in various parts of the United States; with the correlation of the soils of different parts of the country and their scientific classification; with the locating, mapping, and classifying of the soils of agricultural school farms and experiment station farms, in cooperation with various State organizations; with the study of the soil and alkali conditions in reclamation projects

in cooperation with the United States Reclamation Service; with the reconnaissance survey of extensive areas; and with the preparation of maps and reports covering this work.

For the proper administration of the field work of the soil survey the country has been divided into four divisions, as follows: Southern division—H. H. Bennett, in charge. Northern division—J. E. Lapham, in charge. Western division—Macy H. Lapham, in charge. Use of soils—J. A. Bonsteel, in charge.

Assistants in the soil survey are: John H. Agee, R. T. Allen, R. T. Avon Burke, W. C. Byers, M. E. Carr, W. T. Carter, jr., J. B. R. Dickey, E. C. Eckmann, W. J. Geib, R. B. Hardison, W. E. Hearn, L. C. Holmes, G. B. Jones, A. E. Kocher, W. J. Latimer, C. Lounsberry, W. E. McLendon, A. W. Mangum, C. J. Mann, G. B. Maynadier, C. N. Mooney, T. M. Morrison, J. W. Nelson, T. D. Rice, L. A. Schoenmann, H. C. Smith, W. G. Smith, A. T. Strahorn, A. T. Sweet, W. E. Tharp, C. Van Dyne, J. O. Veatch, C. S. Waldrop, E. B. Watson, H. L. Westover, H. J. Wilder, R. A. Winston, P. O. Wood, F. S. Bucher, A. E. Taylor, C. F. Shaw, L. A. Hurst, Geo. A. Crabb, B. D. Gilbert, E. S. Vanatta, L. Cantrell, A. H. Meyer, F. V. Emerson, and A. L. Goodman.

FERTILITY INVESTIGATIONS.

OSWALD SCHREINER, *scientist, in charge.*

The Division of Fertility Investigations has for its object the study of the causes of and remedy for infertility in certain soils, whether natural or arising from improper methods of cultivation and cropping. It is engaged in the separation, identification, and study of certain organic substances found in unproductive soils, and the correction of their evil effects by mechanical handling, by the use of fertilizers, and by other methods available to the farmer. Assistants are: J. H. Beattie, B. E. Brown, A. M. Jackson, E. C. Lathrop, D. G. McAdam, F. R. Reid, E. C. Shorey, J. J. Skinner, M. X. Sullivan, and H. Winkelmann.

SOIL-WATER INVESTIGATIONS.

W J MCGEE,¹ *expert in charge.*

The Division of Soil-water Investigations has for its object the investigation of the relation of soils to drainage and seepage waters.

BUREAU OR ENTOMOLOGY.

Entomologist and chief, L. O. HOWARD; Entomologist and acting chief in absence of chief, C. L. MARLATT; Executive assistant, R. S. CLIFTON.

The Bureau of Entomology obtains and disseminates information regarding injurious insects affecting field crops, fruits, truck crops, stored products, and forests and forest products; studies insects in relation to diseases of man and other animals, and as animal parasites; experiments with the introduction of beneficial insects, and conducts experiments and tests with insecticides and insecticide machinery. It is further charged with investigations in apiculture. The information gained is disseminated in the form of bulletins and circulars. Much museum work is done in connection with the National Museum, and insects are identified for experiment stations and other public institutions and private individuals. The work of this bureau is organized under the following sections:

INVESTIGATIONS OF INSECTS AFFECTING SOUTHERN FIELD CROPS.

W. D. HUNTER, *in charge.*

This section includes work against the insect pests of cotton, tobacco, sugar cane, and rice. Investigations are also under way on a number of pests affecting domestic animals, including the tick which transmits splenic fever of cattle. In this connection studies have been begun on the possible transmission of pellagra by insects. One of the main lines of the southern field-crop insect investigations deals with the Mexican cotton boll weevil. This work in general is designed to lead to the perfection of methods of control suitable to the regions in which the insect is just making its way. Considerable attention is devoted

¹ Deceased.

to the propagation and encouragement of parasitic enemies of the weevil. The tobacco insect investigations deal with the destruction of the principal enemies of the crop by means of poisons and in other ways. The work on sugar cane and rice insects deals with a number of species which are causing considerable losses to the planters of those crops. The work against insects and ticks concerned in the transmission of diseases is all planned to reveal methods of practical control.

CEREAL AND FORAGE INSECT INVESTIGATIONS.

F. M. WEBSTER, *in charge*.

Foremost among these investigations is that of the alfalfa weevil in Utah, Idaho, and Wyoming, comprising field experiments, extensive importations of insect enemies from Europe, and experiments with fungous diseases. The chalcis fly which attacks alfalfa and clover seed throughout the United States is being studied. Investigations and experiments are being conducted with reference to the alfalfa caterpillar, the alfalfa gall midge, which was evidently introduced some time in the past from Europe, the fall army worm, and other insects attacking and destroying alfalfa. Other projects relate to several insects affecting corn and barley, among which is the species commonly known as the corn leaf-aphis, but which along the Mexican border attacks barley to such an extent as to render its cultivation almost impossible. Elsewhere investigations are being conducted with reference to the chinch bug and the Hessian fly; the latter with special reference to dates of sowing in the fall and the effect of humidity on the hatching of the eggs. Investigations are being conducted on white grubs with a view to learning the value of certain diseases which it seems may be used artificially against them, on the southern corn leaf-beetle, on several of the false wireworms, and on the western army cutworm. Investigations are being made also on the jointworm, on the insects attacking soy beans and cowpeas, on the southern and western corn rootworms, on the corn root-aphis, on the grass or fall army worm, and on wireworms, covering the entire territory infested by these insects in the United States. Other insect pests which are the subjects of investigation are the corn webworm and various species of cutworms.

INVESTIGATIONS OF INSECTS AFFECTING DECIDUOUS FRUITS.

A. L. QUAINANCE, *in charge*.

This branch of the bureau is charged with investigations of insects injurious to orchards, vineyards, nut trees, etc. Field laboratories are maintained for a series of years in important fruit sections, and the destructive insects of the region carefully studied. Experiments and demonstrations on a commercial scale are made in the preparation and use of insecticides, spraying apparatus, etc. Some of the more important projects under way are: Investigations of grape insects, including phylloxera, codling moth, cranberry insects, pear thrips, and plum curculio.

INVESTIGATIONS OF INSECTS AFFECTING CITRUS FRUITS.

C. L. MARLATT, *in charge*.

Under the above heading come all investigations of insects affecting the citrus fruits, pineapple, olive, fig, and all other tropical and subtropical fruit cultures. The investigation of the white fly in Florida, and of the black and other citrus-scale insects in California, and of hydrocyanic-acid gas and other means of control of these pests come in this section.

TRUCK-CROP AND STORED-PRODUCT INSECT INVESTIGATIONS.

F. H. CHITTENDEN, *in charge*.

Under this head come the investigations of insects affecting vegetable crops, including the sugar beet. Field studies are being conducted in Virginia, Tennessee, Texas, Colorado, Indiana, California, Maryland, New York, and Utah, and the projected work includes experiments and demonstrations in the con-

trol of the onion thrips and the curly-top leafhopper. The investigation of stored-product insects includes the species which feed upon such materials as grain and manufactured cereals, leguminous seeds, dried fruits, nuts, tobacco, dried meats, and other animal products such as cheese, leather, hides, wool, and various fabrics. A special study is being made of export flour from the Gulf region, to determine the principal sources and means of prevention of infestation, and similar work is being done in the control of several species of insects infesting stored peanuts.

FOREST-INSECT INVESTIGATIONS.

A. D. HOPKINS, *in charge*.

Field investigations have been extended into the forests of every State and section of the country to determine the principal insect enemies of forest trees and forest products, the character and extent of their depredations, and the more important facts relating to the life history of the insects, and to other subjects upon which to base conclusions and recommendations relating to practical methods of preventing losses. Special efforts are being made through cooperation with private owners and the officials of National and State forests to demonstrate the practical value of the results already attained.

INVESTIGATIONS OF INSECTS AFFECTING SHADE TREES AND ORNAMENTAL PLANTS.

(Under the direction of the entomologist.)

This constitutes a section separate from the investigations on the insect enemies of forests, and although some of the insects are identical, the problem of how to deal with them is in most cases quite distinct. It includes the economic treatment of borers, tree defoliators, scales, and aphides, as well as other insects that affect trees in public parks and in the streets of large cities.

INSECTS IN RELATION TO DISEASE AND AS ANIMAL PARASITES.

(Under the immediate direction of the entomologist.)

This field of investigation has assumed very great importance during the last few years, as a result of the connection established between the mosquito and various diseases, such as malaria and yellow fever, and the agency of the house fly in the dissemination of typhoid fever. It covers not only the rôle played by insects as conveyers and disseminators of diseases among man and the lower animals, but also deals with insects as internal and external animal parasites.

INVESTIGATIONS IN BEE CULTURE.

E. F. PHILLIPS, *in charge*.

The structure and development of the bee are being investigated. Various phases of the behavior of bees are being studied, since all practical manipulations depend on a thorough knowledge of habits. Several lines of practical work are being investigated, and the ultimate object of all the work of this office is to aid the beekeeper by giving reliable information which will be of use to him in his business. The cause and treatment of the various bee diseases are being investigated thoroughly in order that some means may be found of controlling this source of heavy loss.

INTRODUCTION OF FOREIGN BENEFICIAL INSECTS.

(Under the immediate direction of the entomologist.)

Results of extraordinary value in the control of certain imported insect pests have been secured by the introduction of their natural enemies, and two or three notable successes have resulted in the annual saving of more than the cost of the Bureau of Entomology since its origin. The introduction of enemies of the boll weevil and of the gipsy and brown-tail moths comes in this field. When such work is carried out by expert entomologists there need be no risk of introducing injurious forms, but if attempted by others there is danger of the introduction of harmful species.

GIPSY MOTH AND BROWN-TAIL MOTH INVESTIGATIONS.

(Under the immediate direction of the entomologist.)

The work looking to the control of the gipsy moth and brown-tail moth is carried out under a special appropriation by Congress. The prevention of the spread of the gipsy moth is accomplished chiefly by clearing out strips of forests bordering the roadways to prevent the carriage of larvæ on passing automobiles and other vehicles. A laboratory is maintained for the assemblage, study, proper separation, and liberation of imported parasites of the gipsy and brown-tail moths; field studies are made of the work of imported and native parasites.

MISCELLANEOUS INVESTIGATIONS.

(Under the immediate direction of the entomologist.)

Much work accomplished by this office does not fall under any of the headings previously noted. Such are supervision of quarantine operations and the identification of material for experiment stations and individuals, not only in the United States but in various foreign countries. A great deal of technical work is also done by the employees of this office, most of whom are specialists in some particular group of insects and do more or less work in the classification and care of the museum material coming directly under their hands.

BUREAU OF BIOLOGICAL SURVEY.

Chief, HENRY W. HENSHAW; *Assistant chief*, T. S. PALMER.

The Bureau of Biological Survey studies the geographic distribution of animals and plants, and maps the natural life zones of the country; it also investigates the economic relations of birds and mammals, recommends measures for the preservation of beneficial and the destruction of injurious species, and is charged with carrying into effect the provisions of the Federal laws for the importation of wild birds and other wild animals, and for the protection of game by control of interstate trade in game, and by other means.

The bureau is divided into three divisions, the work being distributed as follows: (1) Biological surveys and investigations of the geographic distribution of mammals and birds, in charge of Vernon Bailey; (2) investigations to determine the relation of birds and mammals to agriculture, their food habits, etc., in charge of A. K. Fisher; (3) supervision of matters relating to protection of game and the importation of foreign birds and animals, in charge of T. S. Palmer.

DIVISION OF ACCOUNTS AND DISBURSEMENTS.

Chief of division and disbursing clerk, A. ZAPPONE.

The Division of Accounts and Disbursements audits, adjusts, and pays all accounts and claims against the department; decides questions involving the expenditure of public funds; prepares advertisements and schedules for annual supplies, exclusive of those prepared by the general supply committee, and letters of authority; writes, for the signature of the Secretary, all letters to the Treasury Department pertaining to fiscal matters; examines and signs requisitions for the purchase of supplies; issues bills of lading and requests for passenger and freight transportation; prepares the annual estimates of appropriations; prepares annual fiscal reports to Congress, and transacts all other business relating to the financial interests of the department.

The chief of the division, as administrative officer of the fiscal affairs of the department, has supervision over all fiscal agents, and gives the accounts submitted by them a close administrative examination; also has supervision and control of the new Central Accounting Office established for the purpose of accounting and reporting in accordance with the principles outlined by the President's Commission on Economy and Efficiency, as well as the Treasury Department.

WEATHER BUREAU SECTION.

EDGAR B. CALVERT, assistant chief, in charge.

This section audits all accounts for the Weather Bureau and prepares checks in settlement thereof.

FOREST SERVICE SECTION.

M. E. FAGAN, *fiscal agent, in charge*; E. A. MELZAR, *district fiscal agent, assistant*.

This section audits accounts and prepares checks in settlement thereof pertaining to the Washington office of the Forest Service, and also keeps a record of all fiscal matters and liabilities pertaining to the field force of the Forest Service.

DISTRICT FISCAL AGENTS.

Through the following-named district fiscal agents in the field, the Division of Accounts and Disbursements audits and pays the field accounts of the Forest Service: J. A. Urbanowicz, Missoula, Mont.; H. I. Loving, Denver, Colo.; J. J. Duffy, Albuquerque, N. Mex.; Q. R. Craft, Ogden, Utah; F. C. Thompson, San Francisco, Cal.; A. H. Cousins, Portland, Oreg.

CASHIER'S SECTION.

W. J. NEVIUS, *cashier and chief clerk, in charge*.

This section prepares and mails all checks and handles all moneys received and disbursed.

AUDITING SECTION.

EVERETT D. YERBY, *supervising auditor, in charge*.

This section audits all salary, reimbursement, purchase, telegraph, and express accounts.

MISCELLANEOUS SECTION.

W. R. FUCHS, *deputy disbursing clerk, in charge*.

This section has charge of the preparation of the several annual fiscal reports to Congress and the administrative examination of the accounts of the Forest Service and of the Weather Bureau; also audits all accounts of the board of consulting scientific experts.

BOOKKEEPER'S SECTION.

F. W. LEGGE, *accountant and bookkeeper, in charge*.

This section keeps all books pertaining to the fiscal affairs of the department, indexes all accounts, prepares all requisitions on the Treasury for advances of public funds, compiles for rendition to the accounting officers of the Treasury the quarterly abstracts of expenditures and collections and the account current covering the liability for public funds, and has charge of the correspondence with the accounting officers of the Treasury in the settlement of accounts.

FREIGHT AND TRANSPORTATION SECTION.

E. E. FORBES, *auditor, in charge*.

This section audits all passenger and freight accounts and prepares and issues all passenger and freight transportation requests and bills of lading covering freight shipments.

CENTRAL ACCOUNTING OFFICE SECTION.

WALTER L. SHUCK, *accountant, in charge*.

This section exercises a control over the expenditures, receipts, and fidelity accounts of the several divisions and bureaus of the department.

DIVISION OF PUBLICATIONS.

Editor and chief, JOS. A. ARNOLD; *Editor and assistant chief*, B. D. STALLINGS; *Chief clerk*, A. I. MUDD.

The Division of Publications is the publishing house of the Department of Agriculture. Its force comprises editors, proof readers, compilers, indexers, abstracters, artists, draftsmen, engravers, and photographers, together with clerks and laborers engaged in the distribution of the publications. The division is charged with (1) the preparation and editing of the manuscripts and indexing the publications of the department; (2) supervision and equitable assignment of

the printing fund (\$475,000); (3) the supervision of all printing and binding done for the department; (4) the preparation of drawings for illustrations and photographic work; (5) the distribution of department publications, and all correspondence in connection therewith; (6) the preparation and distribution of official information and of advance notices of publications to agricultural writers and papers.

The Division of Publications is the authorized medium of all official communications between the Department of Agriculture and the Government Printing Office.

EDITORIAL WORK.

B. D. STALLINGS, *editor and assistant chief, in charge.*

The duty of seeing that the publications and the other printing of the department are properly put through the press falls upon the editorial force.

The work comprises the reading and editing of all manuscripts submitted for publication by the department, preparing them for the printer, correcting the proofs, and inspecting the completed work. The form and style of all publications, blanks, etc., is indicated by this section, which is also charged with the preparation of advance notices of bulletins and reports, or any work of the department which may be of interest to the public. It keeps the records and looks after the numerous details of the vast volume of printing and binding for the department. Special reports on particular subjects as well as the abstracts and synopses of bulletins and reports are intrusted to the section.

The editorial corps is as follows: R. B. Handy, Ephraim Cornman, William F. Harding, George W. Kennedy, Stanley Searles, T. K. Burrows, R. S. Moore, and J. R. Bowie, assistant editors.

INDEXING.

CHARLES H. GREATHOUSE, *assistant editor, in charge.*

This section is occupied with the preparation of indexes of department publications for immediate use in the division, and for publication and distribution; with correspondence requiring full and accurate references or involving unusual difficulty in locating the desired information. The indexes of the Yearbook and many other publications which have indexes printed under the same covers with the text are made here. Translation and compilation of information, for use in the division and for publication, are usually assigned to the indexing section; also documents printed by Congress, including bills, resolutions, etc., are obtained by this office for the other branches of the department.

The principal assistants are Ed. S. Hoskins, Laura B. Lawson, and Mary A. E. Smith.

ILLUSTRATIONS.

L. S. WILLIAMS, *assistant in charge.*

In this branch of the work a corps of artists, draftsmen, photographers, and clerks is engaged in preparing illustrations for the publications of the department, and in doing the photographic work required by the various bureaus, divisions, and offices. It also furnishes to miscellaneous applicants photographic prints and lantern slides at the prices fixed by the Secretary under the law.

DISTRIBUTION OF PUBLICATIONS.

FRANCIS J. P. CLEARY, *assistant in charge.*

This section receives, prepares for mailing, and distributes all the publications of the Department of Agriculture.

To promptly consider and comply with the enormous number of requests by mail for the publications occupies the time of a corps of experienced stenographers and clerks, and a force of laborers is required for the work incident to mailing them.

YEARBOOK.

(Under the immediate supervision of the editor and chief.)

The preparation of the Yearbook of the department involves the selection of timely articles and the presentation of the year's progress in agriculture. The editing of this material and putting it in form for the printer, the selection and making of illustrations, reading proof, indexing, and final supervision of publication is in progress during the greater part of each year.

FARMERS' BULLETINS.

(Under the immediate supervision of the editor and chief.)

The Division of Publications has general charge of the Farmers' Bulletin series of publications. These brief popular bulletins, prepared in the various bureaus, divisions, and offices, and occasionally by persons not connected with the department, give in simple, concise language the results of investigations and experiments, outlining methods of farm procedure, and offer instructions and suggestions to practical farmers and those who may desire to become such. Under the law four-fifths of all Farmers' Bulletins printed are allotted to Senators, Representatives, and Delegates in Congress for distribution to their constituents, the remainder being reserved for distribution by the department.

BUREAU OF STATISTICS.

Statistician and chief of bureau, VICTOR H. OLMSTED; Associate statistician, NAT C. MURRAY; Assistant statistician and assistant chief of bureau, SAMUEL A. JONES; Chief clerk, FRANK G. KELSEY.

The Bureau of Statistics issues the monthly crop reports of the Department of Agriculture, prepares the statistical portion of the Yearbook, and makes special investigations relating to agricultural statistics and agricultural economics, for publication in bulletin form or in response to special inquiries.

The monthly crop reports, in their scope, give at appropriate seasons the acreage, condition, production, quality, and prices of corn, wheat, oats, barley, rye, buckwheat, flaxseed, potatoes, hay, tobacco, rice, and cotton and the monthly prices of various other products; the relative condition during the growing season and the final production, compared with a full crop, expressed in percentages, of apples, blackberries, cantaloupes, cranberries, grapes, lemons, oranges, peaches, pears, raspberries, strawberries, watermelons, asparagus, beans, cabbage, onions, sweet potatoes, tomatoes, broom corn, hemp, hops, peanuts, sorghum, sugar beets, sugar cane, alfalfa, blue grass, Canadian peas, cowpeas, clover, kafir corn, millet, timothy, and pastures; yield per acre of cowpeas, kafir corn, apples, cranberries, grapes, pears, hops, peanuts, sweet potatoes, sugar beets, and sorghum; they give the stock of barley, corn, hay, oats, and wheat on hand at stated periods, the number, value, condition, losses by disease or exposure of live stock, and the average weight per fleece of wool.

The statistics of acreage and production issued by this bureau are based upon estimates, and not upon an enumeration, the main object being to present early in the crop season approximately accurate statements of supplies before the products have been entirely distributed or consumed.

The bureau compiles and tabulates, from official and commercial sources, the world's production, by countries, of corn, wheat, oats, barley, rye, potatoes, rice, sugar, cotton, flax, tobacco, wool, hops, coffee, silk, and live stock, and records and tabulates prices of the principal agricultural products in various markets of the United States.

It also tabulates and coordinates statistics of agricultural production, distribution, and consumption, the authorized data of governments, institutes, societies, boards of trade, chambers of commerce, produce exchanges, trade journals, and individual experts.

Concise summaries of the monthly crop reports are given to the press and telegraph companies at a specified hour, previously advertised, and thus distributed quickly throughout the country. Details are printed soon after in the "Crop Reporter," designed for circulation among producers and consumers.

CROP REPORTING BOARD.

VICTOR H. OLMSTED, *chairman.*

Monthly crop estimates for important crops are made by a crop-reporting board, consisting of the chief of bureau as chairman, and four individual members, selected from the officials of the bureau at Washington and from the special field agents and State statistical agents, called to Washington on report days for that purpose. Part of the personnel of the board is changed from month to month. Thus the members of the board are selected from a corps

of over 60 men, well trained and thoroughly informed as to crop conditions, and as to the relative value and correctness of the various data upon which the crop reports are based. The data upon which the monthly crop reports are based are collected in quadruplicate, that is, from four sources, independent of each other, and used as a check against each other. In a few inquiries additional sources of information are utilized. Thus reports relating to acreage and production of cotton are based upon returns from (1) field agents; (2) State statistical agents; (3) county correspondents; (4) township correspondents; (5) ginners; (6) special list, made up mostly of bankers, supply men, etc.; (7) individual farmers reporting for their own farms.

The members of the board during the calendar year 1911, in addition to the chairman each month, were as follows: From the department at Washington, Nat C. Murray, S. A. Jones, and George K. Holmes; from the Special Field Service, J. J. Darg, J. P. Killebrew, J. E. Woodworth, W. L. Pryor, S. D. Fessenden, H. T. Bradford, F. S. Pinney, J. W. Richardson, B. C. White, P. H. Kirk, A. F. Hitt, and F. N. Gray; and from State statistical agents, W. A. Withers, W. J. Northen, Jefferson Johnson, J. H. Shepperd, John Cownie, P. A. Rogers, T. J. Anderson, L. T. Moulton, C. L. Hare, E. J. Lundy, C. W. Allen, and H. E. Chynowith.

DIVISION OF DOMESTIC CROP REPORTS.

FRED J. BLAIR, *statistical scientist in charge.*

The Division of Domestic Crop Reports handles the reports of various classes of crop correspondents of the Bureau of Statistics throughout the United States. Blank schedules are sent each month to correspondents, to be used by them in making their reports regarding crop areas and conditions, quantities and qualities of production, prices, live stock, etc., as indicated in the preceding description of the work of the Bureau of Statistics. These reports, when received, are tabulated for the use of the statistician and the crop reporting board in compiling monthly estimates as published by the Department of Agriculture in the Crop Reporter. At intervals blank schedules are sent to cotton ginners, individual farmers, and special correspondents, to be used by them in making reports regarding cotton, live stock, and the areas and quantities of various crops, which are tabulated for use in the same manner as the reports referred to.

An important branch of the work of this division consists in keeping filled the ranks of the bureau's crop correspondents, among whom numerous changes, both in personnel and post-office addresses, occur from month to month.

The voluntary correspondents make reports on acreage, condition, and yield of various crops, and on the numbers and values of live stock, from time to time.

The chief of this division has charge of making such statistical computations and compilations as are required for the use of the Bureau of Statistics and occasionally for other bureaus of the Department of Agriculture which have need of such work.

The mailing lists of the bureau are under the direction of the chief of this division, who also has charge of receiving, assorting, and distributing the voluminous daily mail of the bureau.

FIELD SERVICE.

The service outside of Washington consists of 20 special field agents, 47 State statistical agents, and about 150,000 voluntary correspondents.

SPECIAL FIELD SERVICE.

(Under immediate direction of chief of bureau.)

The special field agents are H. T. Bradford, A. D. Cook, J. J. Darg, S. D. Fessenden, F. W. Gist, F. N. Gray, A. F. Hitt, Paul H. Kirk, Erwin T. Marchetti, George L. Morgan, D. Phillips, F. S. Pinney, W. L. Pryor, J. E. Woodworth, J. W. Richardson, J. E. Rickards, T. C. Shaw, and B. C. White; special agent on rice, De Lancey Evans; special agent on tobacco, J. P. Killebrew.

Each special field agent systematically traverses the agricultural sections of the United States within a certain designated district or group of States, carefully notes the development of each important crop, keeps in close touch with the best-informed opinion throughout his district, and reports to the statistician. The special agent on rice and the special agent on tobacco traverse all portions of the United States in which the respective agricultural products upon which they report are produced.

The State statistical agents maintain special corps of correspondents and report to the statistician upon agricultural conditions for the States they represent. The majority are authorized to travel over their respective States at least twice each year, thus keeping in close touch with their correspondents and with agricultural conditions.

DIVISION OF PRODUCTION AND DISTRIBUTION.

GEORGE K. HOLMES, *statistical scientist in charge.*

The Division of Production and Distribution has developed a scope of work in directions heretofore little, if at all, explored. It has created a general survey of agricultural conditions and accomplishments in the United States, composed of the more important elements of production, in quantity and value; of national surplus, deficiency, and consumption; of farm wealth and labor; and of economic achievement and agricultural progress.

The production of important agricultural commodities by the principal countries of the world below and above their respective requirements for consumption, the sources of the supply of such commodities to deficient countries, and the destination of the surpluses of exporting countries together constitute a subject of unceasing popular interest which is receiving much attention in this division.

The historical aspect of the agricultural production of the United States in particular products and of the surplus or deficiency with regard to domestic consumption has occasioned much painstaking and original work.

The trend of events in recent years has made the future supply of wheat a world problem, and the subject has received and is receiving original treatment. Meat supply also is a problem of world-wide concern, and a large amount of varied information concerning it has been collected and published. Constant efforts are made to bring to date the information concerning wheat and meat.

The transportation of agricultural products from farm to consumer by wagon, rail, and water, and the costs and methods of marketing are subjects which have been productive of much original work. The division is accumulating much information relating to farmers' associations on the cooperative plan for production, selling, and buying; for fire, live stock, and other insurance; for warehousing, for performing telephone service, and for promoting mutual helpfulness. Matters of economic significance in the production of wealth on farms and in the disposal of products afford a wide range for work in this division in many directions which are not pursued by any other departmental office.

Along the lines of work pursued, the effort is to establish permanent results of frequent utility to the offices of the Department of Agriculture, to the many applicants for information outside of the department, and to the general public. Most of the many bulletins issued from this division are of permanent usefulness and are in current demand; the many special articles that have been prepared for the Yearbook by persons employed in this division are of continuing service; and the three score statistical tables contributed to the Agricultural Statistics of the Yearbook are brought down to date annually and are of permanent value.

This is an office of special research and investigation within a field not covered by any office in any other department. The following lines of work illustrate the activities of this division: The total quantity and value of agricultural production yearly subsequent to the Federal census; an annual review of agricultural production; the ascertainment of the national surplus of agricultural products in quantity and value; a summary of the receipts in the United States of the agricultural products of other countries and a determination of the farmers' international balance of trade. There are such inquiries also as those relating to the movement from city to country, rural life and agriculture, the wages of farm laborers in the United States, and the chronology of United States agriculture.

In continuation of the foregoing may be mentioned a compilation of the international trade of all countries in prominent agricultural products; The production of prominent crops in all chief countries of the earth; the dates of planting and maturity of cultivated crops in all countries, including the United States; the economic aspects of cold storage; the relation of railroads to agricultural development; and cotton production throughout the world with reference to the maintenance of the supremacy of the cotton of the United States.

DIVISION OF RESEARCH AND REFERENCE.

CHARLES M. DAUGHERTY, *statistical scientist, in charge.*

The functions of this division consist chiefly of research and editorial work, and may be summarized as follows:

The preparation of a monthly circular relative to foreign crops, giving the latest current information respecting agriculture abroad.

Editing and revising all bulletins and circulars written or compiled in the bureau.

The preparation of articles for and the editing of the *Crop Reporter*, a monthly publication of the bureau, designed to disseminate useful and timely information in regard to crops, agricultural conditions, and prices of agricultural products in the United States and foreign countries.

The preparation of bulletins.

The examination and collation of information from domestic and foreign journals, Federal, State, and foreign censuses, reports of municipal chambers of commerce, and of statistical bureaus of home and foreign governments on matters relating to agriculture, for the purpose of preparing reports thereon and of answering special inquiries addressed to the department concerning agricultural statistics.

Translation for the bureau, and occasionally for other bureaus of the department, of articles and letters in foreign languages.

The compilation of statistics from official and other sources, giving, in so far as ascertainable, the world's annual area and production, by countries, of corn, wheat, rye, oats, barley, brans, and flaxseed, and the production of coffee, for publication in the *Yearbook*.

The management and care of the statistical library of the bureau, and, in connection therewith, the compilation of a comprehensive card index of current agricultural information contained in the official and commercial publications of the principal countries of the world.

LIBRARY.

Librarian, CLARIBEL R. BARNETT; *Assistant librarian*, EMMA B. HAWKS.

The librarian has general supervision of the library of the department, purchases books and periodicals, supervises their arrangement and cataloguing, and has charge of the preparation of bibliographies and similar publications. The librarian is also in charge of the mailing lists for the distribution of department publications in foreign countries.

OFFICE OF EXPERIMENT STATIONS.

Director, A. C. TRUE; *Assistant director*, E. W. ALLEN; *Chief clerk*, Mrs. C. E. JOHNSTON.

The work of the Office of Experiment Stations includes: (1) Relations with American and foreign institutions for agricultural research, together with the supervision of expenditures of the State agricultural experiment stations in the United States; (2) the preparation of publications; (3) the management of the experiment stations in Alaska, Hawaii, Porto Rico, and Guam; (4) relations with agricultural colleges and schools, farmers' institutes and kindred organizations at home and abroad, and the general promotion of agricultural education in the United States; (5) irrigation investigations; (6) drainage investigations; and (7) nutrition investigations. In all lines of work the office cooperates with the State agricultural colleges and experiment stations.

RELATIONS WITH INSTITUTIONS FOR AGRICULTURAL RESEARCH.

E. W. ALLEN, *assistant director, and editor of Experiment Station Record.*

This office represents the department in its relations with the agricultural experiment stations maintained in all the States and Territories under the acts of Congress of March 2, 1887, and March 16, 1906. It supervises the expenditures of the Federal funds granted to the stations under these acts and publishes information regarding their organization, equipment, resources, and work. Its principal publications based on the work of the stations are in two series, (1) *Experiment Station Record* and (2) *Experiment Station Work*.

Experiment Station Record, begun in 1889, comprises abstracts of the bulletins and annual reports of the experiment stations in the United States, the

publications of the United States Department of Agriculture, books, journals, and miscellaneous publications containing reports of investigations in agricultural science in the different countries of the world; editorials on important matters relating to the progress of agricultural investigation and science, station administration, suggestions of lines of inquiry for stations, agricultural education, etc.; and notes on the organization, equipment, and development of institutions for agricultural education and research at home and abroad. Each volume of the Record consists of nine numbers and detailed author and subject indexes. Two volumes are issued annually. This journal is sent without charge to institutions for agricultural education and research in this country, to the officers of such institutions, to similar institutions in foreign countries, to important libraries, and to a select list of scientists and specialists who cooperate with the department. It is also sold by the superintendent of documents at \$1 a volume.

Experiment Station Work, which is published periodically (every two months) in the Farmers' Bulletin series of the department, gives a popular summary of some of the more salient practical results of the work of the experiment stations and is distributed free of charge.

The editorial staff engaged in the preparation of these periodicals is as follows: Assistant editor, H. L. Knight; agricultural chemistry and agrotechny, L. W. Fetzner; meteorology, soils, and fertilizers, W. H. Beal and B. W. Tillman; agricultural botany, bacteriology, and vegetable pathology, W. H. Evans and W. E. Boyd; field crops, J. I. Schulte; horticulture and forestry, E. J. Glasson; foods and human nutrition, C. F. Langworthy; zootechny, dairying, and dairy farming, E. W. Morse; economic zoology and entomology, W. A. Hooker; veterinary medicine, W. A. Hooker and L. W. Fetzner; rural engineering, R. W. Trullinger; rural economics, B. B. Hare; agricultural education, D. J. Crosby and C. H. Lane.

EDITORIAL DIVISION.

W. H. BEAL, *chief*.

This division is charged with the editing of the publications of the office, exclusive of the Experiment Station Record. These include: (1) Annual reports, including the administrative report of the director and the larger annual report of the office; (2) Experiment Station Work; (3) publications relating to the food and nutrition of man, consisting of technical and popular bulletins, reports, and circulars, based upon the results of nutrition investigations conducted under the auspices of the office; (4) publications relating to irrigation and drainage, which include reports, technical and popular bulletins, and circulars, giving the results of the irrigation and drainage investigations of the office; (5) educational and other publications, including those relating to agricultural colleges and schools, extension departments, farmers' institutes and similar organizations at home and abroad, and the card index of experiment station literature, besides miscellaneous documents of various kinds.

In the preparation and editing of these publications the chief of the editorial division is assisted by other members of the office staff.

DIVISION OF INSULAR EXPERIMENT STATIONS.

WALTER H. EVANS, *chief*.

This division is charged with the general business connected with the management of experiment stations in Alaska, Hawaii, Porto Rico, and Guam, which are conducted under the direction of the office.

ALASKA AGRICULTURAL EXPERIMENT STATIONS.

C. C. GEORGESON, *Sitka, special agent in charge*.

The main station for agricultural investigations in Alaska is located at Sitka. Investigations are also carried on at Rampart, in the Yukon Valley; at Kodiak; and at Fairbanks, in the valley of the Tanana River. The work consists of field experiments with vegetables, cereals, and forage plants, horticultural investigations, the maintenance of live stock, the curing of hay and silage, the distribution of seeds, and an agricultural survey of the Territory. Besides the special agent in charge, the officers of the stations are as follows: A. J. Wilkus, assistant, at Sitka; G. W. Gasser, assistant, at Rampart; M. D. Snodgrass, assistant, at Kodiak; J. W. Neal, assistant, at Fairbanks.

HAWAII AGRICULTURAL EXPERIMENT STATION.

E. V. WILCOX, *Honolulu, special agent in charge.*

The Hawaii Agricultural Experiment Station has headquarters at Honolulu, where a tract of about 200 acres is occupied. The investigations include experiments with cotton, tobacco, rice, forage crops, fiber and horticultural plants, and investigations in vegetable pathology and in entomology. In cooperation with the Hawaiian government, demonstration farms have been established on the larger islands of the group. Besides the special agent in charge, the officers of the station are as follows: D. T. Fullaway, entomologist; J. E. Higgins, horticulturist; C. J. Hunn and V. G. Holt, assistants in horticulture; C. K. McClelland, agronomist; C. A. Sahr, assistant in agronomy; W. P. Kelley, chemist; W. T. McGeorge and Alice R. Thompson, assistant chemists.

PORTO RICO AGRICULTURAL EXPERIMENT STATION.

D. W. MAY, *Mayaguez, special agent in charge.*

The Porto Rico Agricultural Experiment Station has its headquarters at Mayaguez, on a tract of land of 235 acres, purchased for its use by the insular government. Investigations are in progress on questions relating especially to the growing of coffee, field crops, and horticultural plants, the development of animal industry and dairying, soils, vegetable pathology, and entomology. The officers of the station are: The special agent in charge; C. F. Kinman, horticulturist; T. B. McClelland, assistant in horticulture; C. W. Hooker, entomologist; G. L. Fawcett, plant pathologist; P. L. Gile, chemist; C. N. Ageton, assistant chemist; and E. G. Ritzman, animal husbandman.

GUAM AGRICULTURAL EXPERIMENT STATION.

J. B. THOMPSON, *Guam, special agent in charge; P. NELSON, assistant.*

The agricultural experiment station in Guam is located near Agaña, the principal town of the island. Experiments are being conducted in improved methods of cultivation, introduction and improvement of tropical agricultural crops, introduction of improved live stock, and similar lines of work.

RELATIONS WITH AGRICULTURAL COLLEGES AND SCHOOLS.

D. J. CROSBY, *specialist in agricultural education; C. H. LANE and B. B. HARE, assistants.*

This branch of the office represents the department in its relations with the agricultural colleges established under the acts of Congress of July 2, 1862, and August 30, 1890. It collates and publishes information regarding the organization, equipment, resources, and courses of study of agricultural colleges and schools in this and other countries. It promotes the general interests of agricultural education throughout the United States, including especially the introduction of instruction in agriculture into secondary and elementary schools.

RELATIONS WITH FARMERS' INSTITUTES.

JOHN HAMILTON, *farmers' institute specialist; J. M. STEDMAN, assistant.*

This branch of the office investigates and reports upon the organization and progress of farmers' institutes in the several States and Territories, and aids in making such organizations more effective for the dissemination of the results of the work of the Department of Agriculture and the agricultural experiment stations, and of improved methods of agricultural practice. It also aids in the wider diffusion of agricultural education among adults through movable schools and other forms of extension work.

NUTRITION INVESTIGATIONS.

C. F. LANGWORTHY, *chief; R. D. MILNER, assistant.*

This branch of the office investigates and reports upon the nutritive value of agricultural products used for human food, with special suggestions of plans and methods for the more effective utilization of such products for this purpose. Certain kinds of the work are done in cooperation with other bureaus of the department. S. C. Clark, W. P. Garrety, A. D. Holmes, and H. L. Lang, assistants in nutrition laboratory.

IRRIGATION INVESTIGATIONS.

SAMUEL FORTIER, *chief*.

The irrigation investigations branch of the office aims to extend the area irrigated and the yield and value of the crops grown on this area by improving irrigation practice, and to prevent waste of time and money by settlers by giving them practical directions as to methods of preparing land for irrigation and applying water. It includes (1) investigations and experiments for the advancement of knowledge regarding the use of water for irrigation; (2) the collection and publication of practical information regarding irrigation practice; (3) development of methods for utilizing ground and storm waters in irrigation, and the extension of irrigation in the semiarid region through the use of limited water supplies; (4) experiments in the use of power for securing a water supply for irrigation; and (5) studies of the legal and economic relations of irrigators to each other and to the public.

Fred G. Harden, assistant. In charge of field work: A. P. Stover, western Oregon; C. E. Tait, southern California; S. O. Jayne, Washington; Frank Adams, California; W. W. McLaughlin, Utah; P. E. Fuller, Arizona and power investigations; W. L. Rockwell, Texas; Don H. Bark, Idaho; Milo B. Williams, humid section; C. G. Haskell, rice investigations; R. D. Robertson, central California; V. M. Cone, Colorado; F. L. Bixby, New Mexico; J. W. Longstreth, Kansas; Fred C. Scobey, Wyoming; S. T. Harding, Montana and North Dakota; H. W. Grunsky, Oregon; F. W. Stanley, South Atlantic States; F. L. Peterson, Nevada; and H. C. Diesem, Nebraska and South Dakota. Editorial clerks: Frank Huntington and Paul A. Ewing. Collaborators: W. B. Gregory, pumping plants and canals for rice irrigation; and S. H. Beckett, California. Irrigation farmers: John Gordon, R. G. Hemphill, W. H. Lauck, R. E. Mahoney, and John Krall, jr.

DRAINAGE INVESTIGATIONS.

S. H. McCrory, *engineer, in charge*.

The drainage investigations of the office embrace the investigation of the following subjects: (1) The best practical methods of removing surplus water from lands having an agricultural value in both humid and irrigated sections; (2) the protection of lands which are capable of being made productive, from the periodical overflow of streams; (3) the reclamation of tidal lands which may be made valuable for agriculture; and (4) the controlling and conservation of the rainfall on hillside lands which are susceptible of tillage.

In order to cover adequately this general field, the work is carried on by three different methods:

First. The examination and study of the drainage laws in force, and their application in this and other countries, and of past and current drainage practice, with reference to the use of various methods and their success or failure in solving existing problems in localities where drainage is an important factor in agriculture; also the collection and systematic arrangement of known general principles and descriptions of the best current drainage practice for the information and use of agricultural engineers and others upon whom the planning and carrying out of drainage work devolves.

Second. Assisting farmers, communities, and districts in the initiation and direction of drainage improvements, by extended examinations and preliminary surveys, if necessary, in order to determine the practicability of the desired drainage and the best plan to be adopted for the work, such assistance being rendered in representative localities for the purpose of encouraging and promoting correct practice rather than for the purpose of lessening the preliminary expense of those who incidentally profit by such assistance.

Third. The examination and experimental investigation of problems pertaining to land drainage, concerning which there is a lack of existing information.

Engineer in charge of drainage investigations, S. H. McCrory; office engineers, R. D. Marsden and H. H. Barrows; draftsmen, G. F. Pohlers, H. B. Artley, and J. G. Hanford; senior clerk, H. S. Yohe; drainage engineers, H. A. Kipp, S. W. Frescoln, O. G. Baxter, Fred F. Shafer, G. M. Warren, D. L. Yarnell, J. V. Phillips, Lewis A. Jones, F. G. Eason, and Chas. W. Okey; drainage engineers for irrigated lands, R. A. Hart, D. G. Miller, W. W. Weir, Sidney W. Cooper, W. A. Kelly, W. N. Hall, and W. G. Sloan; assistant drainage engineers, J. R. Haswell, W. J. Schlick, A. G. Hall, and C. W. Mengel; engineers available for special work, A. E. Morgan, S. M. Woodward, C. F. Brown, and L. L. Hidingier.

OFFICE OF PUBLIC ROADS.

Director, LOGAN WALLER PAGE; *Assistant director*, PAUL D. SARGENT; *Chief engineer*, VERNON M. PEIRCE; *Chief of economics*, LAURENCE I. HEWES; *Assistant in road management*, M. O. ELDERIDGE; *Testing engineer*, ALBERT T. GOLDBECK; *Chemist*, CHARLES S. REEVE; *Chief inspector*, EDWIN W. JAMES; *Petrographer*, EDWIN C. E. LORD; *Editorial clerk and librarian*, WM. W. SNIFIN; *Chief clerk*, W. CARL WYATT.

The Office of Public Roads collects data concerning systems of road management and all phases of road improvement, and makes comparative studies of the subject; investigates methods of road building and maintenance, and furnishes expert assistance to rural sections in road construction; tests road materials and ascertains their location and comparative value; cooperates with schools and colleges in highway engineering instruction, and publishes information of value concerning road improvement for free distribution.

The work of the office is mainly directed: (1) To the collection and compilation of data in reference to systems of road management and to a comparative study of such systems in order to determine the merits and defects of each as far as possible, and to ascertain the causes of success or failure; (2) to obtain full and accurate statistics on all phases of road improvement and present them to the public in such forms as to constitute a practical basis for the determination of many points bearing upon the economics of road construction; (3) to direct the efforts of rural sections along proper lines in actual road building; and to this end highway engineers and road experts are detailed to render service and cooperate with the local officials in the construction of short sections of model roads, which frequently form nuclei of extensive systems of improved roads; (4) to ascertain the location, availability, and comparative value of road-building materials in all parts of the United States, for which purpose laboratories are maintained in Washington to investigate the chemical and physical properties of road materials and other materials of construction, and to conduct experiments tending to increase facilities for road improvement so far as materials are concerned; (5) to find practical solutions for the problems confronting large sections of country where, from lack of natural road materials or from other causes, the cost of hard roads is now prohibitive. Experimental roads are built to test substitutes for natural road materials, and the question of long-distance transportation receives careful consideration; (6) to direct more general attention to highway engineering in schools and colleges throughout the United States, in order that an adequate number of competent highway engineers may be prepared to carry on properly the vast work of highway improvement. The office is endeavoring to keep in close touch with educational institutions in this respect and to render every assistance possible. In furtherance of this general plan a one-year post-graduate course in highway engineering is conducted by the office, providing practical laboratory and field instruction and exercises. The advantages of this system are mutual—the student renders service to the Government and in turn receives a small money compensation and such training as will fit him to discharge intelligently the duties of his profession; (7) to investigate the comparative effects of motor and horse traffic on various types of roads and to devise methods of construction adapted to modern traffic conditions; (8) to cooperate with agricultural colleges and experiment stations wherever practicable in order to accomplish the purposes above outlined. In all States having State highway officials the office endeavors to act in harmony with such officials; (9) to cooperate with State and county fair associations; National, State, county, and local road organizations; agricultural colleges; State highway commissions; and exposition and railroad companies in displaying and demonstrating models made to scale showing the various standard types of road construction and maintenance, culvert and bridge building and road-building tools and machinery, and operations incident thereto, including quarrying and crushing stone.

ADVISORY BOARDS.

REFEREE BOARD OF CONSULTING SCIENTIFIC EXPERTS.

The referee board was created by a special order dated February 24, 1908, and consists of the following members: Dr. Ira Remsen, chairman; Dr. Russell H. Chittenden, Dr. John H. Long, Dr. Alonzo E. Taylor, and Dr. Theobald Smith. The board considers those scientific questions, arising from time to

time in the enforcement of the food and drugs act of June 30, 1906, which may be referred to the board by the Secretary of Agriculture. The board has made an exhaustive report to the Secretary on the healthfulness of benzoate of soda in food, and is at present considering the healthfulness of saccharine and sulphur in food products.

BOARD OF FOOD AND DRUG INSPECTION.

The Board of Food and Drug Inspection, created by order of the Secretary on April 25, 1907, considers all questions other than legal questions arising in the enforcement of the food and drugs act of June 30, 1906, upon which the decision of the Secretary of Agriculture is necessary, and reports its findings to the Secretary for his consideration and decision. All correspondence involving interpretations of the law and questions arising under the law, not theretofore passed upon by the Secretary of Agriculture, is considered by the board, which holds frequent meetings, at stated times, in order that findings may be reported promptly. The board also conducts hearings based upon alleged violations of the food and drugs act provided for by the rules and regulations approved October 17, 1906. Pending appointment to the position of Chief of the Bureau of Chemistry, the following have been designated members of the board: Dr. Roscoe E. Doolittle, acting chief of the Bureau of Chemistry, chairman; Dr. Frederick L. Dunlap, associate chemist, Bureau of Chemistry; and Mr. Andrew S. Mitchell, chief of the St. Paul Laboratory, Bureau of Chemistry.

COMMITTEE ON BUILDINGS OF THE DEPARTMENT OF AGRICULTURE.

A committee, of which C. C. Clark, chief clerk, is chairman, is charged with the directing and supervising of changes in the buildings of the department as may be necessary, and for advising and recommending proper and systematic management of new buildings, rented quarters, etc. This committee acts, also, as a board of awards, considering all bids pertaining to the construction of new buildings that may be erected by the Department of Agriculture, and all changes necessary in buildings connected with the bureaus and divisions of the department. In addition to the chairman the members of the committee are Jos. A. Arnold, editor and chief, Division of Publications; and W. A. Taylor, pomologist and assistant chief, Bureau of Plant Industry.

COMMITTEE ON PERSONNEL.

The committee on personnel is composed of Willet M. Hays, Assistant Secretary of Agriculture; C. C. Clark, Chief Clerk of the department; and George P. McCabe, Solicitor of the department.

Each chief of bureau, office, or division is directed to report to the Secretary, for reference to this committee, dereliction of duty and actions prejudicial to the interests of the department. The committee considers all such cases, and when it finds it to be necessary, on its own motion, investigates and makes reports to the Secretary.

The committee is empowered to summon any employee as a witness. It is not intended, however, that the work of this committee shall interfere with the proper supervision of employees by other bureau and division officials.

ADVISORY COMMITTEE ON PRINTING AND PUBLICATION WORK.

The advisory committee on printing and publication work is made up as follows: W. M. Hays, Assistant Secretary, chairman; Willis L. Moore, Chief of the Weather Bureau; and Jos. A. Arnold, Department Editor, secretary. The duties of the committee are to assist in carrying out the directions of the order under which it was appointed. There are no stated times for holding meetings, the committee being called together whenever its advice is deemed necessary.

INSECTICIDE AND FUNGICIDE BOARD.

The insecticide and fungicide board, created by a special order of the Secretary, on December 22, 1910, assists the Secretary in the enforcement of the insecticide act of 1910. It consists of the following members: Dr. Marion Dorsett, chairman; M. B. Waite, Prof. A. L. Quaintance, and Dr. J. K. Haywood; A. W. Smith, executive officer.

INDEX.

	Page.
Aaronsohn, A., expert, crop plant acclimatization, Plant Industry.....	16
Accounts and Disbursements Division, Forest Service branch, work.....	22
officials and duties.....	37-38
Weather Bureau branch, work.....	8
Acquisition of lands under Weeks law, Forest Service, work of office.....	25
Adams, C. H., assistant district forester, acquisition of lands, Forest Service..	26
E. L., scientific assistant, cereal investigations, Plant Industry.....	17
Frank, in charge California irrigation investigations, Experiment Sta- tions Office.....	46
James B., assistant forester in charge, operations branch and lands branch, Forest Service.....	22, 23
Advisory boards, officials and work.....	47-48
Agee, John H., assistant, Soil Survey.....	34
Ageton, C. N., assistant chemist, Porto Rico Experiment Station.....	45
Agricultural research, Experiment Stations Office, work.....	43-44
technology, etc., Plant Industry Bureau, work.....	16
Aicher, L. C., agent, cereal investigations, Plant Industry.....	17
Alaska Experiment Stations, work.....	44
Albrech, M. C., chief, food-inspection laboratory, Chemistry Bureau, Pitts- burgh, Pa.....	27
Alciatore, Henry F., section director, Weather Bureau, Little Rock, Ark.....	9
Alkali plant-breeding investigations, etc., Plant Industry, work.....	18
Allard, H. A., scientific assistant, tobacco investigations, Plant Industry.....	17
Allen, C. W., member Crop Reporting Board, Statistics Bureau.....	41
E. W., assistant director, and editor Experiment Station Record, Ex- periment Stations Office.....	43
R. T., assistant, Soil Survey.....	34
Allison, J. H., expert, foreign seed and plant introduction, Plant Industry....	20
Almy, L. H., assistant, animal physiological chemistry, Chemistry Bureau....	31
Alsberg, C. L., chemical biologist, drug-plant investigations, etc., Plant Indus- try.....	16
Alwood, William B., in charge, section of enological technology, Chemistry Bureau.....	32
Ames, F. E., assistant district forester, acquisition of lands, Forest Service.....	25
Anders, A. T., agent, crop plant acclimatization, Plant Industry.....	16
Anderson, G. G., administrative assistant, branch of operation, Forest Service..	22
T. J., member Crop Reporting Board, Statistics Bureau.....	41
Animal husbandry division, Animal Industry Bureau, work.....	11
Industry Bureau, divisions, officials, work.....	10-14
parasites and insects in relation to disease, Entomology Bureau, work..	36
physiological chemistry section, Chemistry Bureau, work.....	31
Animals, importation of foreign, etc., Biological Survey.....	37
quarantine, work of Solicitor's office.....	4
Appointment clerk, duties.....	2
Arlington Experimental Farm and horticultural investigations, Plant Industry	20
Arnold, Earl C., field assistant to Solicitor.....	4
J. H., scientific assistant, farm management, Plant Industry.....	18
Jos. A., editor and chief, Publications Division; member building com- mittee; member advisory printing committee.....	38, 48
Artley, H. B., draftsman, drainage investigations, Experiment Stations Office..	46
Assistant Secretary, duties.....	2
Auditing section, Accounts Division, work.....	38
Aune, Beyer, farm superintendent, western irrigation agriculture, Plant Indus- try.....	19

	Page.
Babcock, F. R., assistant in grain investigations, Plant Industry.....	17
Bacon, C. B., assistant, contracts laboratory, Chemistry Bureau.....	29
Charles W., assistant physiologist, tobacco investigations, Plant Industry.....	17
Bacteriological chemistry section, Chemistry Bureau, work.....	31-32
Bailey, H. S., chief, oil, fat, and wax laboratory, division of foods, Chemistry Bureau.....	27
L. H., assistant, plant physiological chemistry, Chemistry Bureau....	32
Vernon, in charge biological surveys, etc., Biological Survey Bureau...	37
Bain, S. M., collaborator, crop-plant acclimatization, Plant Industry.....	16
Balcom, R. W., chief, food-inspection laboratory, Chemistry Bureau, Nashville, Tenn.....	27
Ball, Carlton R., acting cerealist in charge cereal investigations, Plant Industry.....	17
J. S., assistant in farm accounting, farm management, Plant Industry....	18
Ballard, W. S., assistant pathologist fruit disease investigations, Plant Industry.....	14
Bark, Don H., in charge Idaho irrigation investigations, Experiment Stations Office.....	46
Barnes, Will C., inspector of grazing, branch of grazing, Forest Service.....	24
Barnett, Claribel R., librarian, Department Library.....	43
Barometry, Weather Bureau work.....	7
Barrett, L. A., assistant district forester, acquisition of lands, Forest Service....	26
Barron, J. H., agent, farm management, Plant Industry.....	18
William E., section director, Weather Bureau, Vicksburg, Miss.....	9
Barrows, H. H., office engineer, drainage investigations, Experiment Stations Office.....	46
Bartlett, G. M., acting chief, food inspection laboratory, Chemistry Bureau, Galveston, Tex.....	27
H. H., chemical biologist, drug-plant investigations, etc., Plant Industry.....	16
Bassett, L. B., agent, farm management, Plant Industry.....	18
Bates, C., assistant, bacteriological chemistry, Chemistry Bureau.....	32
Baxter, O. G., drainage engineer, Experiment Stations Office.....	46
Beagles, Robert L., assistant superintendent in charge, Chico, Cal., farm, Plant Industry.....	20
Beal, W. H., chief editorial division, and assistant editor, Experiment Stations Office.....	44
Beals, Edward A., editor, Weather Bureau, Portland, Oreg.....	10
in charge Weather Bureau district, Portland, Oreg.....	9
Beattie, assistant, fertility investigations, Soils Bureau.....	34
Beattie, W. R., assistant horticulturist, Arlington Farm, Plant Industry.....	20
Beckett, S. H., collaborator, California irrigation investigations, Experiment Stations Office.....	46
Beckwith, Angie M., expert xylographer, fruit-disease investigations, Plant Industry.....	14
Bee culture investigations, Entomology Bureau, work.....	36
Beinhart, E. G., assistant in tobacco investigations, Plant Industry.....	17
Belz, J. O., assistant, biophysical investigations, Plant Industry.....	16
Bennett, C. M., scientific assistant, farm management, Plant Industry.....	18
Bennett, H. H., in charge southern division, Soil Survey.....	34
H. N., scientific assistant, farm management, Plant Industry.....	18
Benson, O. H., assistant agriculturist, farm management investigations, Plant Industry.....	18
Bentley, Geo. A., chief, maintenance office, branch of operation, Forest Service.....	23
W. D., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
Besley, H. J., assistant, grain standardization, Plant Industry.....	16
Bidwell, G. L., acting chief, cattle-food and grain laboratory, Chemistry Bureau.....	29
Biesterfeld, C. H., assistant, dairy laboratory, Chemistry Bureau.....	30
Bigelow, W. D., assistant chief, and chief of foods division, Chemistry Bureau..	26, 27
Billings, G. A., assistant agriculturist, farm management investigations, Plant Industry.....	18
Biochemic Division, Animal Industry Bureau, work.....	11
Biological Survey Bureau, divisions, officials, and duties.....	37
surveys, mammals and birds, Biological Survey Bureau.....	37
Biophysical investigations, Plant Industry Bureau, work.....	16
Birds and mammals, biological survey, Biological Survey Bureau.....	37
importation of foreign, etc., Biological Survey.....	37

	Page..
Birds, relation to agriculture, etc., Biological Survey.....	37
Bisbee, D. B., chief, food inspection laboratory, Chemistry Bureau, St. Louis, Mo.....	27
Bisset, Peter, expert plant introducer, foreign seed and plant introduction, Plant Industry.....	20
Bitting, A. W., special investigations, La Fayette, Ind., Chemistry Bureau..	33
Bixby, F. L., in charge New Mexico irrigation investigations, Experiment Stations.....	46
Black, Otis F., chemical biologist, drug-plant investigations, etc., Plant Industry.....	16
Blair, Fred J., statistical scientist, in charge crop reports division, Statistics Bureau.....	41
R. E., assistant, western irrigation agriculture, Plant Industry.....	19
Bliss, George S., section director, Weather Bureau, Philadelphia, Pa.....	10
Blohm, J. E., special agent, tobacco investigations, Plant Industry.....	17
Boards, advisory, officials and work.....	47-48
Boerner, E. G., assistant, grain standardization, Plant Industry.....	16
Bonsteel, J. A., in charge use of soils, Soil Survey.....	34
Bookkeeper's section, Accounts Division, work.....	38
Boughton, E. W., assistant, contracts laboratory, Chemistry Bureau.....	29
Bower, J. H., assistant, contracts laboratory, Chemistry Bureau.....	29
Bowie, J. R., assistant editor, Publications Division.....	39
Boyd, W. E., assistant editor, Experiment Stations Office.....	44
Boyle, C. W., assistant to the Solicitor, work.....	4
M., assistant, food inspection laboratory, Chemistry Bureau.....	27
Brackett, G. B., pomologist in charge pomological collections, Plant Industry..	19
Bradford, H. T., member Crop Reporting Board and special field agent, Statistics Bureau.....	41
Brand, Charles J., physiologist in charge of paper-plant investigations, etc., Plant Industry.....	16
Brandenburg, Frederick H., editor, Weather Bureau, Denver, Colo.....	10
in charge Weather Bureau district, Denver.....	9
Breazeale, J. F., assistant, plant physiological chemistry, Chemistry Bureau..	32
Breithaupt, L. R., agent, cereal investigations, Plant Industry.....	17
Briefs, preparation, Solicitor's Office, note.....	3
Briggs, Lyman J., biophysicist in charge biophysical investigations, Plant Industry.....	16
Robert R., section director, Weather Bureau, Phoenix, Ariz.....	9
Brinton, C. S., chief, food inspection laboratory, Chemistry Bureau, Philadelphia.....	27
Brodie, D. A., agriculturist, farm management investigations, Plant Industry..	18
Broomell, A. W., assistant, food technology laboratory, division of foods, Chemistry.....	27
Bronson, D. D., general inspector, Forest Service.....	22
Brown, B. E., assistant, fertility investigations, Soils Bureau.....	34
Brown, C. F., engineer, drainage investigations, Experiment Stations Office...	46
D. E., assistant in tobacco investigations, Plant Industry.....	17
Edgar, botanist in charge seed-testing laboratories, Plant Industry.....	17
Ernest B., assistant physiologist, corn investigations, Plant Industry..	17
Nellie A., scientific assistant, laboratory of plant pathology, Plant Industry.....	14
Brown-tail moth investigations, Entomology Bureau, work.....	37
Bryan, A. H., chief, sugar laboratory, Chemistry Bureau.....	31
H., assistant, laboratories, Soils Bureau.....	33
Mary K., scientific assistant, laboratory of plant pathology, Plant Industry.....	14
Buchbinder, H. E., assistant, drugs division, Chemistry Bureau.....	28
Bucher, F. S., assistant, Soil Survey.....	34
Buck, C. J., assistant district forester, acquisition of lands, Forest Service....	26
Buckley, J. S., in charge blackleg investigations, Animal Industry Bureau...	13
Bunnemeyer, Bernard, section director and editor, Weather Bureau, Houston, Tex.....	10
Bunzel, H. H., chemical biologist, drug-plant investigations, etc., Plant Industry.....	16
Burke, R. T. Avon, assistant, Soil Survey.....	34
Burmeister, C. A., assistant, dry-land agriculture investigations, Plant Industry.....	19

	Page.
Burnet, W. C., chief, food inspection laboratory, Chemistry Bureau, Savannah, Ga.....	27
Burnett, L. B., assistant, oil, fat, and wax laboratory, division of foods, Chemistry Bureau.....	27
L. C., agent, cereal investigations, Plant Industry.....	17
Burns, Findley, in charge technical review, Forest Service.....	22
Burr, W. W., assistant, dry-land agriculture investigations, Plant Industry...	19
Burrows, T. K., assistant editor, Publications Division.....	39
Butler, Ovid M., assistant district forester, acquisition of lands, Forest Service.	25
Butterfield, E. C., assistant horticulturist, Arlington Farm, Plant Industry...	20
Byers, W. C., assistant, Soil Survey.....	34
Byrnes, E. M., assistant in charge, experimental gardens and grounds, Plant Industry.....	20
	7
Calvert, Edgar B., assistant chief, in charge Weather Bureau section, Accounts.	8, 33
Cameron, Frank K., scientist in charge laboratories, Soils Bureau.....	33
Campbell, H. C., in charge, cooperative experiments with Pennsylvania Live Stock Sanitary Board, Animal Industry.....	13
W. G., chief inspector, Chemistry Bureau.....	27
Cannon, C. L., assistant, grain standardization, Plant Industry.....	16
Cantaloupes, special studies, Chemistry Bureau.....	33
Cantrell, L., assistant, Soil Survey.....	34
Cardon, P. V., scientific assistant, cereal investigations, Plant Industry.....	17
Carpenter, Alma L., scientific assistant, seed-testing laboratories, Plant Industry.....	17
Carr, M. E., assistant, Soil Survey.....	34
Carroll, Charles C., chief clerk, Animal Industry Bureau.....	10
Daniel J., chief clerk, Weather Bureau, work.....	5
W. P., assistant, grain standardization, Plant Industry.....	16
Carter, W. T., jr., assistant, Soil Survey.....	34
Caruthers, R. P., scientific assistant, Arlington Farm, Plant Industry.....	20
Cashier's section, Accounts Division, work.....	38
Cattle-food and grain laboratory, miscellaneous division, Chemistry Bureau, work.....	29
Cecil, George H., district forester, Forest Service, Portland, Oreg.....	25
Central section, Accounts Division, work.....	38
Cereal investigations, Plant Industry Bureau, work.....	17
Chace, E. M., assistant chief, foods division, and chief of food technology laboratory, Chemistry Bureau.....	27
Chambers, W. E., expert, agricultural technology, etc., Plant Industry.....	16
Chambliss, C. E., agronomist, cereal investigations, Plant Industry.....	17
Chaplin, Manley, scientific assistant, cereal investigations, Plant Industry.....	17
Chappel, George M., section director and editor, Weather Bureau, Des Moines, Iowa.....	9, 10
Charles, Vera K., scientific assistant, pathological collections, Plant Industry..	14
Charts, Weather Bureau, preparation and use.....	5, 6
Chase, Agnes, scientific assistant, taxonomic and range investigations, Plant Industry.....	18
Chemistry Bureau, organization and work.....	26-33
Chesnut, V. K., assistant, drugs division, Chemistry Bureau.....	28
Chief clerk, Department, duties.....	2
inspector, office, Chemistry Bureau.....	27
Chilcott, E. C., agriculturist in charge, dry-land agriculture investigations, Plant Industry.....	19
E. F., assistant, dry-land agriculture investigations, Plant Industry.....	19
Chittenden, F. H., in charge, truck-crop and stored-product insect investigations, Entomology.....	35
Russell H., member referee board consulting scientific experts...	47
Chubbuck, Levi, agriculturist, farm management investigations, Plant Industry.....	18
Church, C. G., assistant, sugar laboratory, and special investigator, Chemistry Bureau.....	31, 33
John P., chief, publication division, Weather Bureau.....	8
Lillian, assistant in farm accounting, farm management, Plant Industry.....	18
Verne H., section director, Weather Bureau, Indianapolis, Ind.....	9
Chynoweth, H. E., member Crop Reporting Board, Statistics Bureau.....	41

	Page.
Claims, forest service law work	3
office, lands branch, Forest Service, work	23
Clapp, Earle H., forest inspector, branch of silviculture, Forest Service	23
Clark, C. C., duties as chief clerk; member of committees	2, 48
C. F., scientific assistant, cotton and truck diseases, Plant Industry	15
C. H., assistant, crop plant acclimatization, Plant Industry	16
J. A., agent, cereal investigations, Plant Industry	17
S. C., assistant, nutrition investigations, Experiment Stations Office	45
W. B., assistant chemist, cotton and truck diseases, Plant Industry	15
Clarke, H. H., field assistant to Solicitor	4
Clawson, A. B., physiologist, drug-plant investigations, etc., Plant Industry	16
Cleary, Francis J. P., assistant in charge of publications distribution, Publications Division	39
Clifton, E. S., executive assistant, Entomology Bureau	34
Climatological division, Weather Bureau	7
Cline, Isaac M., in charge weather district and editor, New Orleans, La.	9, 10
McGarvey, in charge, and laboratory director, branch of products, Forest Service	24
Close, C. P., scientific assistant, pomological collections, Plant Industry	19
Cobb, N. A., technologist, in charge agricultural technology, etc., Plant Industry	16
Cole, Harvey S., section director, Weather Bureau, Reno, Nev.	10
J. S., expert, dry-land agriculture investigations, Plant Industry	19
Colleges, relations with Experiment Stations Office, work	45
Collins, J. Franklin, forest pathologist, Plant Industry	15
G. N., botanist, crop plant acclimatization, Plant Industry	16
W. D., assistant, water laboratory, Chemistry Bureau	29
Cone, V. M., in charge Colorado irrigation investigations, Experiment Stations ..	46
Congressional seed distribution, Plant Industry Bureau	20
Connolly, E. L., assistant, food research laboratory, Chemistry Bureau	30
Connor, L. G., scientific assistant, farm management, Plant Industry	18
Contract work, Solicitor's office	4
Contract laboratory, Chemistry Bureau, work	29
Cook, A. D., special field agent, Statistics Bureau	41
F. C., assistant, animal physiological chemistry, Chemistry Bureau	31
O. F., bionomist, in charge crop, plant acclimatization, etc., Plant Industry	15
Cooper, Sidney W., engineer for irrigated lands, Experiment Stations Office ..	46
Cooperation, State, branch of silviculture, Forest Service, work	23-24
Coopersmith, S., assistant, bacteriological chemistry, Chemistry Bureau	32
Corbett, L. C., horticulturist in charge, horticultural investigations and Arlington Experimental Farm, Plant Industry	20
Corn investigations, Plant Industry Bureau, work	17
Cornman, Ephraim, assistant editor, Publications Division	39
Cory, V. L., scientific assistant, cereal investigations, Plant Industry	17
Cotton breeding, etc., Plant Industry Bureau, work	15-16
disease investigations, Plant Industry Bureau, work	15
J. S., agriculturist, farm management investigations, Plant Industry ..	18
standardization, etc., Plant Industry Bureau, work	16
W. E., assistant superintendent, experiment station, Animal Industry Bureau	13
Cousins, A. H., fiscal agent, Portland, Oreg., Forest Service section, Accounts Division	38
Coville, Frederick V., botanist in charge taxonomic and range investigations, Plant Industry	18
Cownie, John, member Crop Reporting Board, Statistics Bureau	41
Cox, H. R., scientific assistant, farm management, Plant Industry	18
Henry J., section director and editor, Weather Bureau, Chicago, Ill.	9, 10
J. H., assistant, grain standardization, Plant Industry	16
W. P., in charge of records, Plant Industry Bureau	14
Crabb, George A., assistant, Soil Survey	34
Craft, Q. R., fiscal agent, Ogden, Utah, forest service section, Accounts Division ..	38
Crawford, G. H., jr., expert, field investigations in pomology, Plant Industry ..	19
Crawley, Howard, assistant zoologist, Animal Industry	13
Cron, A. B., scientific assistant forage crop investigations, Plant Industry	18
Cronin, P. D., assistant to the Solicitor, work	4
Crop physiology and breeding investigations, Plant Industry, work	15
plant acclimatization and adaptation, etc., Plant Industry Bureau, work ..	15-16

	Page.
Crop Reporter, preparation, scope, Statistics Bureau.....	43
Reporting Board, Statistics Bureau, members, duties, etc.....	40-41
reports, domestic, Statistics Bureau, work.....	41
season, weather data gathering.....	7
Crosby, D. J., assistant editor and specialist in agricultural education, Experiment Stations Office.....	44, 45
M. A., assistant agriculturist, farm management investigations, Plant Industry.....	18
Cullen, J. A., assistant, laboratories, Soils Bureau.....	33
Cunningham, J. S., expert, tobacco investigations, Plant Industry.....	17
Currier, E. L., agent, farm management, Plant Industry.....	18
Dairy division, Animal Industry Bureau, work.....	11
laboratory, Chemistry Bureau, work.....	30
Dana, S. T., assistant chief, silvics office, branch of silviculture, Forest Service.....	24
Darg, J. J., member Crop Reporting Board and special field agent, Statistics ..	41
Darrow, George M., scientific assistant field investigations in pomology, Plant Industry.....	19
Daugherty, Charles M., statistical scientist, in charge research and distribution division, Statistics Bureau.....	43
Davis, R. O. E., assistant, laboratories, Soils Bureau.....	33
Dawson, E. M., jr., assistant, contracts laboratory, Chemistry Bureau.....	29
Day, L. Enos, in charge pathological laboratory, Chicago, Ill., Animal Industry.....	13
P. C., in charge climatological division, Weather Bureau.....	7
Dearing, Charles, scientific assistant, field investigations in pomology, Plant Industry.....	19
Dechant, H. P., field assistant to Solicitor.....	4
Dendrology branch, Forest Service, work.....	22
Dennis, S. J., expert, field investigations in pomology, Plant Industry.....	19
Denson, Lee A., section director, Weather Bureau, Raleigh, N. C.....	10
Derr, H. B., agronomist, cereal investigations, Plant Industry.....	17
Dewey, George W., scientific assistant field investigations in pomology, Plant Industry.....	19
L. H., botanist in charge of fiber-plant investigations, Plant Industry..	16
Dickey, J. B. R., assistant, Soil Survey.....	34
Diesen, H. C., in charge Nebraska and South Dakota irrigation investigations, Experiment Stations Office.....	46
Dillman, A. C., assistant physiologist alkali plant-breeding investigations, etc., Plant Industry.....	18
Disbursements Division. <i>See</i> Accounts and Disbursements Division.	
Dixon, H. M., scientific assistant, farm management, Plant Industry.....	18
Dodge, C. O., assistant, food technology laboratory, division of foods, Chemistry.....	27
L. G., assistant agriculturist, farm management investigations, Plant Industry.....	18
Donaldson, N. C., agent, cereal investigations, Plant Industry.....	17
Donk, M. G., assistant, leather and paper laboratory, Chemistry Bureau.....	30
Doolittle, Roscoe E., acting chief, Chemistry Bureau, and chairman food and drug inspection board.....	48
Dorset, M., chief biochemic division, Animal Industry, duties.....	11, 48
Dorsett, P. H., expert plant introducer, foreign seed and plant introduction, Plant Industry.....	20
Doyle, A. M., assistant, food inspection laboratory, division of foods, Chemistry.....	27
C. B., scientific assistant, crop plant acclimatization, Plant Industry..	16
Emma S., scientific assistant, seed-testing laboratories, Plant Industry..	17
Drainage investigations, Experiment Stations Office, work.....	46
Drake, J. A., assistant agriculturist, farm management investigations, Plant Industry.....	18
Draper, A. E., librarian, Chemistry Bureau.....	26
Drug-plant investigations, etc., Plant Industry Bureau, work.....	16
Drugs division, Chemistry Bureau.....	28
<i>See also</i> Food and Drugs Act.	
Drummond, Bruce, assistant, crop physiology, etc., Plant Industry.....	15
Dry-land agriculture investigations, Plant Industry, work.....	19
Du Bois, Coert, acting district forester, Forest Service, San Francisco, Cal.....	25
Dubois, W. L., chief, food inspection laboratory, Chemistry Bureau, Buffalo..	27
Duffy, J. J., fiscal agent, Albuquerque, N. Mex., forest service section, Accounts Division.....	38

	Page.
Dunbar, P. B., assistant, division of foods, Chemistry Bureau.....	27
Dunlap, F. L., associate chemist, Chemistry Bureau.....	26, 48
Duval, Laurel, assistant, grain standardization, Plant Industry.....	16
Duvel, J. W. T., technologist in charge, grain standardization, Plant Industry.....	16
Dyer, D. C., assistant, water laboratory, Chemistry Bureau.....	29
Earle, D. E., expert, agricultural technology, etc., Plant Industry.....	16
Eason, F. G., drainage engineer, Experiment Stations Office.....	46
Eckmann, E. C., assistant, Soil Survey.....	34
Economical technology section, Chemistry Bureau, work.....	32
Editor, Department, duties.....	38, 48
office, Forest Service, work.....	22
Editorial office, Animal Industry Bureau, work.....	14
division, Experiment Stations Office, work.....	44
section, Publications Division, work.....	39
Edson, H. A., physiologist, cotton and truck diseases, Plant Industry.....	15
Edwards, R. W., assistant, dry-land agriculture investigations, Plant Industry.....	19
Eggleston, W. W., assistant botanist, drug-plant investigations, etc., Plant Industry.....	16
Eichhorn, Adolph, in charge field investigations, Animal Industry.....	13
Eldredge, M. O., assistant in road management, Public Roads Office.....	47
Emerson, F. V., assistant, Soil Survey.....	34
Emery, W. O., chief synthetic products laboratory, Chemistry Bureau.....	28
English, W. L., State agent, farmers cooperative demonstration work, Plant Industry.....	19
Entomology Bureau, divisions, officials, and duties.....	34-37
Eoff, J. R., jr., assistant, enological technology, Chemistry Bureau.....	32
Estabrook, Leon M., executive assistant in charge of Congressional seed distribution, Plant Industry.....	20
Evans, De Lancey, special field agent, Statistics Bureau.....	41
Edward A., section director, Weather Bureau, Richmond, Va.....	10
J. A., general agent, farmers cooperative demonstration work, Plant Industry.....	19
M. W., scientific assistant forage crop investigations, Plant Industry..	18
Walter H., chief, insular division; assistant editor, Experiment Stations Office.....	44
Ewing, Paul A., editorial clerk, irrigation investigations, Experiment Stations Office.....	46
Experiment station, Animal Industry Bureau, work.....	13
Record, description, scope, distribution, price, etc.....	43-44
Work, publication, scope, etc.....	43, 44
stations, joint Weather Bureau and Forestry, note.....	7
Office, divisions, officials, work.....	43-46
Experimental gardens and grounds, Plant Industry Bureau.....	20
Fagan, M. E., chief and fiscal agent, in charge forest service section, Accounts Division.....	22, 38
Fairchild, David, agricultural explorer in charge, foreign seed and plant introduction, Plant Industry Bureau.....	20
Farm management investigations, Plant Industry Bureau, work.....	18
Farmers' Bulletins, preparation, distribution, etc., Publications Division.....	40
Cooperative Demonstration Work, Plant Industry Bureau.....	18
Institutes, relations with Experiment Stations Office, work.....	45
Farrell, F. D., agronomist, western irrigation agriculture, Plant Industry.....	19
Farrington, A. M., assistant chief, Animal Industry Bureau.....	10
Fassig, Oliver L., section director, Weather Bureau, Baltimore, Md.....	9
Fat, oil, and wax laboratory, Division of Foods, Chemistry Bureau, work.....	27
Fawcett, E. H., scientific assistant, soil bacteriology, Plant Industry.....	15
Fawcett, G. L., plant pathologist, Porto Rico Experiment Station.....	45
Feagans, R. F., field assistant to Solicitor.....	4
Feldkamp, C. L., library assistant, farm management, Plant Industry.....	18
Feldstein, L., assistant, contracts laboratory, Chemistry Bureau.....	29
Fenn, Homer E., assistant district forester, acquisition of lands, Forest Service..	26
Fessenden, S. D., member Crop Reporting Board and special field agent, Statistics Bureau.....	41
Fetzer, L. W., assistant editor, Experiment Stations Office.....	44
Field assistants, Solicitor's office, list and work.....	4-5

	Page.
Field, Ethel C., scientific assistant, cotton and truck diseases, Plant Industry..	15
inspection division, Animal Industry Bureau, work	12
investigations in pomology, Plant Industry Bureau, work	19
File room, Solicitor's office	4
Fiscal agents, district, forest service section, Accounts Division	38
Fisher, A. K., in charge, relations of birds and mammals to agriculture investi- gations, Biological Survey	37
D. F., scientific assistant, fruit disease investigations, Plant Industry..	14
Fitts, Harrison F., stenographic section, Solicitor's office	4
Fletcher, C. C., assistant, laboratories, Soils Bureau	33
W. F., scientific assistant, field investigations in pomology, Plant Industry	19
Flochen, Charles F., in charge, cooperative experiments with Minnesota Sta- tion, Animal Industry Bureau	13
Flood and River Division, Weather Bureau, work	6-7
Flory, C. H., assistant district forester, acquisition of lands, Forest Service....	25
Fluharty, L. W., assistant agriculturist, farm management investigations, Plant Industry	18
Food and Drug Inspection Board, members and duties	48
Drugs Act, enforcement	4, 26-27
inspection laboratory, Division of Foods, Chemistry Bureau, work	27
research laboratory, Chemistry Bureau, work	30
technology laboratory, Division of Foods, Chemistry Bureau, work	27
Foods division, Chemistry Bureau, work	27-28
chief, Chemistry Bureau, duties	27
special investigations, Chemistry Bureau	33
Forage-crop investigations, Plant Industry, work	17
Forbes, E. E., auditor, in charge freight and transportation section, Accounts Division	38
Forecast section, Weather Bureau, work	5
Foreign seed and plant introduction, Plant Industry Bureau	20
Forest districts, location and headquarters	21-22, 25
management in East, branch of silviculture, Forest Service, work	24
pathology investigations, Plant Industry Bureau, work	15
Service, cooperation with States and individuals	21
divisions, officials, work	20-26
law work	3
section, Accounts Division, work	38
Forest-insect investigations, Entomology Bureau, work	36
Forests, National, administration, organization, etc	21-22, 25-26
area	20
Formad, Robert J., assistant in animal pathology, Animal Industry	13
Fortier, Samuel, chief, irrigation investigations, Experiment Stations Office...	46
Foster, W. D., junior zoologist, Animal Industry	13
Foubert, Charles L., scientific assistant tobacco investigations, Plant Industry..	17
Frankenfield, Harry C., in charge river and flood division	6-7
Frederick, H. J., in charge, cooperative experiments with Utah Station, Animal Industry	13
Free, E. E., assistant, laboratories, Soils Bureau	33
Freight-transportation section, Accounts Division, work	38
French, Edwin S., file room, Solicitor's Office	48
Frescoln, S. W., drainage engineer, Experiment Stations Office	46
Froley, J. W., agriculturist, farm management investigations, Plant Industry..	18
Fruit-disease investigations, Plant Industry Bureau, work	14
Fry, W. H. L., assistant, laboratories, Soils Bureau	33
Fuchs, W. R., deputy disbursing clerk, in charge miscellaneous section, Ac- counts Division	38
Fulkerson, Vincent, assistant, western irrigation agriculture, Plant Industry...	19
Fullaway, D. T., entomologist, Hawaii Experiment Station	45
Fuller, P. E., in charge Arizona and power investigations, Experiment Stations.	46
Fungicide and insecticide laboratory, Chemistry Bureau, work	29
Funk, W. C., scientific assistant, farm management, Plant Industry	18
Galloway, Beverly T., physiologist and pathologist, and chief, Plant Industry..	14
Game, protection and importation of foreign birds and animals, Biological Survey	37
Gardens and grounds, experimental, Plant Industry Bureau	20

	Page.
Gardiner, R. F., assistant, laboratories, Soils Bureau.....	33
Gardner, W. W., physiologist in charge tobacco investigations, etc., Plant Industry.....	17
Garner, W. W., physiologist, in charge of tobacco, etc., Plant Industry.....	17
Garrety, W. P., assistant, nutrition investigations, Experiment Stations Office.....	45
Gasser, G. W., assistant, Rampart, Alaska, Experiment Station.....	44
Gates, O. H., assistant to the Solicitor.....	4
Geib, W. J., assistant, Soil Survey.....	34
Gentry, E., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
Geography office, operation branch, Forest Service, work.....	23
Georgeson, C. C., in charge Alaska Experiment Stations.....	44
Geren, Harry O., section director, Weather Bureau, Columbia, S. C.....	10
Gilbert, B. D., assistant, Soil Survey.....	34
G. B., agent, crop plant acclimatization, Plant Industry.....	16
W. W., assistant pathologist, cotton and truck diseases, Plant Industry.....	15
Gilbertson, H. W., agent, farm management, Plant Industry.....	18
Gile, P. L., chemist, Porto Rico Experiment Station.....	45
Gipsy moth investigations, Entomology Bureau.....	37
Gist, F. W., special field agent, Statistics Bureau.....	41
Glasson, E. J., assistant editor, Experiment Stations Office.....	44
Glenn, Samuel W., section director, Weather Bureau, Huron, S. Dak.....	10
Goldbeck, Albert T., testing engineer, Public Roads Office.....	47
Goll, F. L., scientific assistant soil bacteriology, Plant Industry.....	15
Gomme, W. H. F., in charge garden, Brooksville, Fla., Plant Industry.....	20
Goodman, A. L., assistant, Soil Survey.....	34
Goodnow, E. H., assistant, food inspection laboratory, Chemistry Bureau.....	27
Goodrich, C. E., assistant, cattle-food and grain laboratory, Chemistry Bureau.....	29
C. L., agriculturist, farm management investigations, Plant Industry.....	18
Gordon, John, irrigation farmer, Experiment Stations Office.....	46
Gore, H. C., assistant, division of foods; in charge, special studies on fruits and fruit products, Chemistry Bureau.....	27, 28
Goss, W. L., scientific assistant, seed-testing laboratories, Plant Industry.....	17
Goucher, Edward, expert, foreign seed and plant introduction, Plant Industry.....	20
Gould, H. P., pomologist, field investigations in pomology, Plant Industry.....	19
R. A., chief food inspection laboratory, Chemistry Bureau, San Francisco, Cal.....	27
Grace, O. J., farm superintendent, dry-land agriculture investigations, Plant Industry.....	19
Grain and cattle-food laboratory, miscellaneous division, Chemistry Bureau, work.....	29
standardization, Plant Industry Bureau, work.....	16
Grant, Robert Q., section director, Weather Bureau, Cheyenne, Wyo.....	10
Graves, Henry S., forester, Forest Service.....	20
Gray, F. N., member Crop Reporting Board and special field agent, Statistics Bureau.....	41
Graybill, H. W., assistant zoologist, Animal Industry Bureau.....	13
Grazing branch, Forest Service, work.....	24, 26
Greathouse, Charles H., assistant editor, in charge of index section, Publications Division.....	39
Ruth C., assistant, bacteriological chemistry, Chemistry Bureau.....	32
Greeley, W. B., assistant forester in charge, branch of silviculture, Forest Service.....	23
Green, E. C., pomologist in charge South Texas plant introduction, Plant Industry.....	20
Greene, E. L., expert, taxonomic and range investigations, Plant Industry.....	18
Greenlee, A. D., assistant, food research laboratory, Chemistry Bureau.....	30
Gregory, W. B., collaborator, pumping plants and canals for rice irrigation, Experiment Stations Office.....	46
Griffiths, David, agriculturist, farm-management investigations, Plant Industry.....	18
Griggs, W. D., farm superintendent, dry-land agriculture investigations, Plant Industry.....	19
Grubb, N. H., scientific assistant, Arlington Farm, Plant Industry.....	20
Grunsky, H. W., in charge Oregon irrigation investigations, Experiment Stations Office.....	46
Guam Experiment Station, work.....	45

	Page.
Hall, A. G., assistant drainage engineer, Experiment Stations Office.....	46
W. N., engineer for irrigated lands, Experiment Stations Office.....	46
Wm. L., assistant forester, in charge, acquisition of lands under Weeks law, Forest Service.....	25
Hallsted, A. L., assistant, dry-land agriculture investigations, Plant Industry..	19
Hamilton, John, farmers' institute specialist, Experiment Stations Office.....	45
Handy, R. B., assistant editor, Publications Division.....	39
Hanford, J. G., draftsman, drainage investigations, Experiment Stations Office.....	46
Hansen, A. W., acting chief, food-inspection laboratory, Chemistry Bureau, Honolulu.....	27
Dan, farm superintendent, western irrigation agriculture, Plant Industry.....	19
Harden, Fred G., assistant, irrigation investigations, Experiment Stations Office.....	46
Harg, S. T., in charge Montana and North Dakota irrigation investigations, Experiment Stations Office.....	46
T. S., assistant, physical chemistry laboratory, Chemistry Bureau...	31
William F., assistant editor, Publications Division.....	39
Hardison, R. B., assistant, Soil Survey.....	34
Hare, B. B., assistant editor; assistant, agricultural education; Experiment Stations Office.....	44, 45
C. L., member Crop Reporting Board, Statistics Bureau.....	41
Hargrave, C. M., assistant, water laboratory, Chemistry Bureau.....	29
Harlan, H. V., agronomist, cereal investigations, Plant Industry.....	17
Harrington, George T., scientific assistant, seed-testing laboratories, Plant Industry.....	17
Harris, G. W., crop technologist, tobacco investigations, etc., Plant Industry..	17
Hart, B. R., chief food-inspection laboratory, Chemistry Bureau, Cincinnati..	27
R. A., engineer for irrigated lands, Experiment Stations Office.....	46
Harter, L. L., pathologist, cotton and truck diseases, Plant Industry.....	15
Hartley, C. P., physiologist in charge corn investigations, Plant Industry.....	17
Carl P., assistant pathologist, forest pathology investigation, Plant Industry.....	15
Hartmann, B. G., assistant, enological technology, Chemistry Bureau.....	32
Hartwell, F. Eugene, section director, Weather Bureau, San Juan, P. R.....	10
Haskell, C. G., in charge rice-irrigation investigations, Experiment Stations Office.....	46
Hassall, Albert, assistant zoologist, Animal Industry.....	13
Hasse, Clara H., scientific assistant, fruit disease investigations, Plant Industry..	14
Hasselbring, Heinrich, physiologist, drug-plant investigations, etc., Plant Industry.....	16
Hastings, S. H., farm superintendent, western irrigation agriculture, Plant Industry.....	19
Haswell, J. R., assistant drainage engineer, Experiment Stations Office.....	46
Hatton, John H., assistant district forester, acquisition of lands, Forest Service..	26
Hawaii Experiment Station, work.....	45
Hawkins, L. A., scientific assistant, fruit-disease investigations, Plant Industry..	14
Hawks, Emma B., assistant librarian, Department Library.....	43
Hawley, A. M., expert, western irrigation agriculture, Plant Industry.....	19
Hayes, Montrose W., editor, Weather Bureau, St. Louis, Mo.....	10
Hays, Willet M., duties as Assistant Secretary; member of committees.....	2, 48
Haywood, J. K., chief, miscellaneous division, Chemistry Bureau, duties.....	29, 48
Hazen, L. E., assistant, dry-land agriculture investigations, Plant Industry...	19
Headley, F. B., assistant agriculturist, western irrigation agriculture, Plant Industry.....	19
Roy, assistant district forester, acquisition of lands, Forest Service...	25
Hearn, W. E., assistant, Soil Survey.....	34
Hedgcock, George G., pathologist, forest pathology investigations, Plant Industry.....	15
Hedges, Florence, assistant pathologist, Plant Industry.....	14
Heisey, C. J., expert, western irrigation agriculture, Plant Industry.....	19
Heiskell, Henry L., in charge observations division, Weather Bureau.....	5
Hemphill, R. G., irrigation farmer, Experiment Stations Office.....	46
Henderson, W. C., field assistant to Solicitor.....	4
Hendrix, B. M., assistant, nitrogen section, Chemistry Bureau.....	32
Henkel, Alice, assistant, taxonomic and range investigations, Plant Industry..	18

	Page.
Hennis, C. M., scientific assistant, farm management, Plant Industry.....	18
Henry, Alfred J., in charge Mount Weather Meteorological Research Laboratory.....	9
Henshaw, Henry W., chief, Biological Survey.....	37
Hepburn, J. S., assistant, food-research laboratory, Chemistry Bureau.....	30
Herring, W. E., district engineer, Forest Service, Portland, Oreg.....	25
Herrmann, Charles F. von, editor, and section director, Weather Bureau, Atlanta, Ga.....	9, 10
Hersey, Henry B., section director, Weather Bureau, Milwaukee, Wis.....	10
Hewes, Laurence I., chief of economics, Public Roads Office.....	47
Hickman, Richard W., chief, quarantine division, Animal Industry Bureau..	13
Hidinger, L. L., engineer, drainage investigations, Experiment Stations Office.	46
Higgins, J. E., horticulturist, Hawaii Experiment Station.....	45
Hillman, F. H., assistant botanist, seed-testing laboratories, Plant Industry...	17
Hillyer, William E., assistant, food-inspection laboratory, Chemistry Bureau..	27
Hiltner, R. S., chief, food-inspection laboratory, Chemistry Bureau, Denver..	27
Hilts, R. W., assistant, division of foods, Chemistry Bureau.....	27
Hitchcock, A. S., systematic agrostologist, taxonomic and range investigations, Plant Industry.....	18
Hite, Bertha C., scientific assistant, seed-testing laboratories, Plant Industry..	17
Hitt, A. F., member Crop Reporting Board and special field agent, Statistics Bureau.....	41
Hoke, C. E., assistant agriculturist, farm management investigations, Plant Industry.....	18
Holden, J. A., assistant, western irrigation agriculture, Plant Industry.....	19
Holman, H. P., assistant, leather and paper laboratory, Chemistry Bureau...	30
Holmes, A. D., assistant, nutrition investigations, Experiment Stations Office.	45
George K., member Crop Reporting Board and scientist in charge production division, Statistics Bureau.....	41, 42
L. C., assistant, Soil Survey.....	34
Holt, V. G., horticultural assistant, Hawaii Experiment Station.....	45
Hood, S. C., scientific assistant, drug-plant investigations, etc., Plant Industry.	16
Hooker, C. W., entomologist, Porto Rico Experiment Station.....	45
W. A., assistant editor, Experiment Stations Office.....	44
Hoover, G. W., chief, drug inspection laboratory, Chemistry Bureau.....	28
Hopkins, A. D., in charge, forest-insect investigations, Entomology.....	36
Horticultural investigations and Arlington Experiment Farm, Plant Industry.	20
Hoskins, Ed. S., assistant in indexing section, Publications Division.....	39
Hough, C. J., assistant, sugar laboratory, Chemistry Bureau.....	31
Houghton, H. W., assistant, animal physiological chemistry, Chemistry Bureau.	31
Howard, B. J., chief, microchemical laboratory, Chemistry Bureau.....	30
L. O., entomologist and chief, Entomology Bureau.....	34
Howe, Henry C., section director, Weather Bureau, Parkersburg, W. Va.....	10
Hoyt, T. C., assistant district forester, acquisition of lands, Forest Service....	26
Huber, Walter L., district engineer, Forest Service, San Francisco, Cal.....	25
Hudson, C. R., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
C. S., chief, physical chemistry laboratory, Chemistry Bureau.....	31
E. W., assistant, crop physiology, etc., Plant Industry.....	15
Humphrey, C. J., forest assistant, Plant Industry.....	15
H. N., scientific assistant, farm management, Plant Industry.....	18
Humphries, W. R., scientific assistant, farm management, Plant Industry.....	18
Hunn, C. J., horticultural assistant, Hawaii Experiment Station.....	45
Hunter, Byron, agriculturist, farm management investigations, Plant Industry.	18
W. D., in charge, insects affecting southern field crops, investigations, Entomology Bureau.....	34
Huntington, Frank, editorial clerk, irrigation investigations, Experiment Stations Office.....	46
Hurst, L. A., assistant, Soil Survey.....	34
Husmann, F. L., viticultural superintendent, field investigations in pomology, Plant Industry.....	19
G. C., pomologist, field investigations in pomology, Plant Industry.....	19
Illustrations, Publications Division, work.....	39
Index section, Publications Division, work.....	39
Ingle, M. J., assistant, food inspection laboratory, Foods Division, Chemistry..	27

	Page.
Ingram, Della E., scientific assistant, forest pathology investigations, Plant Industry.....	15
Insecticide and fungicide laboratory, Chemistry Bureau, work.....	29
quarantine, work of Solicitor's office.....	4
Insects affecting citrus fruits, investigations, Entomology.....	35
deciduous fruits, investigations, Entomology.....	35
ornamental trees and plants, investigations, Entomology.....	36
southern field crops, investigations, Entomology Bureau.....	34-35
truck crops and stored products, investigations, Entomology.....	35-36
cereal and forage, investigations, Entomology.....	35
foreign, introduction, Entomology Bureau, work.....	36
forest investigations, Entomology.....	36
in relation to disease and as animal parasites, Entomology Bureau, work.....	36
quarantine, etc., investigations, Entomology Bureau, work.....	37
Inspection branch, Forest Service, work.....	22
Inspector, chief, Chemistry Bureau.....	27
Instrument division, Weather Bureau, work.....	7-8
Insular division, Experiment Stations Office, work.....	44
Irish, J. P., jr., farm superintendent, western irrigation agriculture, Plant Industry.....	19
Irrigation investigations, Experiment Stations Office, work.....	46
water supply, studies by Weather Bureau.....	7
Jacobs, B. R., assistant, plant physiological chemistry, Chemistry Bureau.....	32
Cora, scientific assistant, seed-testing laboratories, Plant Industry.....	17
Jackson, A. M., assistant, fertility investigations, Soils Bureau.....	34
James, Edwin W., chief inspector, Public Roads Office.....	47
Jamieson, Clara O., scientific assistant, cotton and truck diseases, Plant Industry.....	15
Jayne, S. O., in charge Washington irrigation investigations, Experiment Stations Office.....	46
Jeffers, L. M., assistant, grain standardization, Plant Industry.....	16
Jenkins, J. M., agent, cereal investigations, Plant Industry.....	17
M., assistant, food-research laboratory, Chemistry Bureau.....	30
Jennings, Thorp B., section director, Weather Bureau, Topeka, Kans.....	9
Johnson, B. D., assistant, dairy laboratory, Chemistry Bureau.....	30
J. M., assistant, division of foods, Chemistry Bureau.....	27
James M., assistant, agriculturist farm management investigations, Plant Industry.....	18
Jefferson, member Crop Reporting Board, Statistics Bureau.....	41
Johnston, E. M., scientific assistant, cereal investigations, Plant Industry.....	17
Mrs. C. E., chief clerk, Experiment Stations Office.....	43
Jones, G. B., assistant, Soil Survey.....	34
J. W., expert, Arlington Farm, Plant Industry.....	20
James E., chief clerk, Plant Industry Bureau.....	14
Lewis A., drainage engineer, Experiment Stations Office.....	46
Oliver F., executive clerk, Congressional seed distribution, Plant Industry.....	20
Samuel A., assistant statistician and assistant chief, and member of Crop Reporting Board, Statistics Bureau.....	40, 41
W. P., assistant to the Solicitor, work.....	3
W. Ralph, scientific assistant, fruit disease investigations, Plant Industry.....	14
Judd, C. S., assistant district forester, acquisition of lands, Forest Service.....	25
Juve, Oscar A., scientific assistant, farm management, Plant Industry.....	18
Kearney, T. H., physiologist, in charge alkali plant-breeding investigations, etc., Plant Industry.....	18
Kebler, L. F., chief, drugs division, Chemistry Bureau.....	28
Keister, J. T., assistant, dairy laboratory, Chemistry Bureau.....	30
Keitt, George W., scientific assistant fruit-disease investigations, Plant Industry.....	14
Kellerman, Karl F., physiologist, in charge, soil bacteriology, etc., Plant Industry.....	15
Maude, botanical translator, crop physiology, etc., Plant Industry.....	15
Kelley, W. P., chemist, Hawaii Experiment Station.....	45
Kelly, Ernest, in charge market-milk investigations, Animal Industry Bureau.....	12
W. A., engineer for irrigated lands, Experiment Stations Office.....	46
Kelsey, Frank G., chief clerk, Statistics Bureau.....	40

	Page.
Kelso, F. L., farm superintendent, dry-land agriculture investigations, Plant Industry.....	19
Kempton, J. H., assistant, crop-plant acclimatization, Plant Industry.....	16
Kennedy, George W., assistant editor, Publications Division.....	39
Kent, R. C., assistant, food-inspection laboratory, Chemistry Bureau.....	27
Kerr, John, assistant district forester, acquisition of lands, Forest Service.....	26
Kiene, F. A., jr., agent, cereal investigations, Plant Industry.....	17
Killebrew, J. P., member Crop Reporting Board, and special field agent, Statistics Bureau.....	41
Kinman, C. F., horticulturist, Porto Rico Experiment Station.....	45
Kinsler, J. H., agent, crop-plant acclimatization, Plant Industry.....	16
Kipp, H. A., drainage engineer, Experiment Stations Office.....	46
Kirk, Paul H., member Crop Reporting Board, and special field agent, Statistics Bureau.....	41
Knapp, Bradford, special agent, in charge farmers' cooperative demonstration work, Plant Industry.....	18
J. B., assistant, district forester, acquisition of lands, Forest Service..	26
Kneipp, Leon F., assistant forester, branch of grazing, Forest Service.....	24
Knight, H. L., assistant editor, Experiment Stations Office.....	44
O. D., assistant, insecticide and fungicide laboratory, Chemistry Bureau.....	29
Knisely, A. L., chief, food inspection laboratory, Chemistry Bureau, Portland, Oreg.....	27
Knorr, Fritz, farm superintendent, dry-land agriculture investigations, Plant Industry.....	19
Kocher, A. E., assistant, Soil Survey.....	34
Kolbe, L. A., assistant, laboratories, Soils Bureau.....	33
Krall, John, jr., irrigation farmer, Experiment Stations Office.....	46
Kramer, E. W., district engineer, Forest Service, Missoula, Mont.....	25
Kyle, Curtis H., assistant physiologist, corn investigations, Plant Industry...	17
Laboratories, Chemistry Bureau, location, officials, and duties.....	29-31
Laboratory, branch of products, Forest Service, work.....	24
plant pathology, Plant Industry Bureau, work.....	14
Ladd, C. E., scientific assistant, farm management, Plant Industry.....	18
Lake, E. R., assistant pomologist, pomological collections, Plant Industry.....	19
Lands, acquisition under Weeks law, Forest Service, work of office.....	25
branch, Forest Service, work.....	23-26
Lane, C. H., assistant, agricultural education, Experiment Stations, Office...	45
Lang, H. L., assistant, nutrition laboratory, Experiment Stations Office.....	45
Langworthy, C. F., chief, nutrition investigations; assistant editor, Experiment Stations Office.....	44, 45
Lapham, J. E., in charge northern division, Soil Survey.....	34
Macy H., in charge western division, Soil Survey.....	34
Latimer, W. J., assistant, Soil Survey.....	34
Lathrop, E. C., assistant, fertility investigations, Soils Bureau.....	34
Lauck, W. H., irrigation farmer, Experiment Stations Office.....	46
Law work, Forest Service.....	3
Solicitor's office.....	3-5
Lawson, J. F., field assistant to Solicitor.....	4
Laura B., assistant in indexing section, Publications Division.....	39
Le Clerc, J. A., chief, plant physiological chemistry section, Chemistry Bureau.	32
Le Febvre, C. C., assistant, drugs division, Chemistry Bureau.....	28
Le Fevre, E., assistant, bacteriological chemistry, Chemistry Bureau.....	32
Leather and paper laboratory, Chemistry Bureau, work.....	30
Legge, F. W., accountant and bookkeeper, in charge bookkeeper's section, Accounts Division.....	38
Leighty, Clyde E., agent, cereal investigations, Plant Industry.....	17
Leonard, L. T., scientific assistant, soil bacteriology, Plant Industry.....	15
Letteer, C. R., assistant, western irrigation agriculture, Plant Industry.....	19
Lewis, A. C., agent, cotton and truck diseases, Plant Industry.....	15
K. B., scientific assistant, field investigations in pomology, Plant Industry.....	19
Library, Department, officials, and duties.....	43
Weather Bureau.....	8
Liepsner, F. W., chief, food inspection laboratory, Chemistry Bureau, Kansas City, Mo.....	27

	Page.
Linney, Charles E., section director, Weather Bureau, Santa Fe, N. Mex.....	10
Linton, F. B., chief clerk, Chemistry Bureau.....	26
Long, C. M., assistant agriculturist, farm management investigations, Plant Industry.....	18
John H., member referee board, consulting scientific experts.....	47
W. W., general agent, farmers' demonstration work, Plant Industry....	19
William H., forest pathologist, Plant Industry.....	15
Longstreth, J. W., in charge Kansas irrigation investigations, Experiment Stations Office.....	46
Loomis, H. M., chief, food inspection laboratory, Chemistry Bureau, Seattle, Wash.....	27
Lord, Edwin C. E., photographer, Public Roads Office.....	47
Lounsbury, C., assistant, Soil Survey.....	34
Loveland, George A., section director, Weather Bureau, Lincoln, Nebr.....	10
Loving, H. I., fiscal agent, Forest Service station, Accounts Division, Denver, Colo.....	38
Lower, Cyrus B., duties as chief of Supply Division.....	2
Lundy, E. J., member Crop Reporting Board, Statistics Bureau.....	41
Lunn, W. M., assistant in tobacco investigations, Plant Industry.....	17
Lute, Anna M., scientific assistant seed-testing laboratories, Plant Industry...	17
Lynch, W. D., assistant, trade wastes laboratory, Chemistry Bureau.....	29
Mahoney, R. E., irrigation farmer, Experiment Stations Office.....	46
Maintenance office, branch of operation, Forest Service, work.....	23
Mammals and birds, biological surveys, Biological Survey Bureau.....	37
relation to agriculture, etc., Biological Survey.....	37
Mangum, A. W., assistant, Soil Survey.....	34
Mann, Albert, expert, agricultural technology, etc., Plant Industry.....	16
C. J., assistant, Soil Survey.....	34
C. W., scientific assistant, field investigations in pomology, Plant Industry.....	19
Marbut, Curtis F., scientist in charge, soil survey, Soils Bureau.....	33
Marchetti, Erwin T., special field agent, Statistics Bureau.....	41
Marine section, Weather Bureau, work.....	6
Marlatt, C. L., entomologist, and acting chief in absence of Chief of Entomology Bureau; in charge, citrus-fruit insect investigations.....	34, 35
Marsden, R. D., office engineer, drainage investigations, Experiment Stations Office.....	46
Marsh, C. Dwight, physiologist, drug-plant investigations, etc., Plant Industry.	16
Marshall, C. G., agent, crop plant acclimatization, Plant Industry.....	16
Martin, J. P., district engineer, Forest Service, Ogden, Utah.....	25
O. B., general agent, farmers' cooperative demonstration work, Plant Industry.....	19
Marvin, Charles F., in charge instrument division, Weather Bureau.....	7
Mason, D. T., assistant district forester, acquisition of lands, Forest Service....	25
Maud L., assistant, bacteriological chemistry, Chemistry Bureau.....	32
S. C., arboriculturist, crop physiology and breeding investigations, Plant Industry.....	15
Mathews, O. R., assistant, dry-land agriculture investigations, Plant Industry.	19
Mathewson, E. H., crop technologist, tobacco investigations, etc., Plant Industry.....	17
May, D. W., in charge Porto Rico Experiment Station.....	45
Maynadier, G. B., assistant, Soil Survey.....	34
McAdams, D. G., assistant, fertility investigations, Soils Bureau.....	34
McAdams, Robert, in charge renovated butter inspection, Animal Industry Bureau.....	12
McAdie, Alexander G., editor, and in charge Weather Bureau district, San Francisco.....	9
McBeth, I. G., scientific assistant, soil bacteriology, Plant Industry.....	15
McCabe, George P., duties as Solicitor; member Personnel Committee.....	3
McCain, A. C., assistant district forester, acquisition of lands, Forest Service...	25
McClelland, C. K., agronomist, Hawaii Experiment Station.....	45
T. B., assistant in horticulture, Porto Rico Experiment Station..	45
McClure, H. B., assistant agriculturist, farm management investigations, Plant Industry.....	18
McCrory, S. H., engineer, in charge drainage investigations, Experiment Stations Office.....	46

	Page.
McCulloch, Lucia, scientific assistant, laboratory of plant pathology, Plant Industry.....	14
McDonnell, C. C., chief, insecticide and fungicide laboratory, Chemistry Bureau.....	29
McDowell, J. C., agriculturist, farm management investigations, Plant Industry ..	18
McGee, W. J., chief, food inspection laboratory, New Orleans.....	27
expert in charge soil-water investigations, Soil Survey.....	34
McGeorge, W. T., assistant chemist, Hawaii Experiment Station.....	45
McGowan, D. F., field assistant to Solicitor.....	4
McKay, A. W., expert, field investigations in pomology, Plant Industry.....	19
M. B., scientific assistant, cotton and truck diseases, Plant Industry..	15
McKee, Clyde, scientific assistant, cereal investigations, Plant Industry.....	17
Roland, scientific assistant, forage-crop investigations, Plant Industry..	18
McKenney, R. E. B., expert, laboratory of plant pathology, Plant Industry..	14
McKenzie, T. P., assistant district forester, acquisition of lands, Forest Service..	26
McKinstry, H. C., assistant, dry-land agriculture investigations, Plant Industry..	19
McLachlan, Argyle, assistant, western irrigation agriculture, Plant Industry ..	19
McLane, J. W., laboratory assistant, biophysical investigations, Plant Industry..	16
McLaughlin, W. W., in charge Utah irrigation investigations, Experiment Stations Office.....	46
McLendon, W. E., assistant, Soil Survey.....	34
McMurrin, S. M., scientific assistant, fruit investigations, Plant Industry.....	14
McNair, A. D., assistant agriculturist, farm management investigations, Plant Industry.....	18
McNeil, H. C., assistant, contracts laboratory, Chemistry Bureau.....	29
Mead, H. B., assistant, drugs division, Chemistry Bureau	28
Meade, R. M., scientific assistant, crop plant acclimatization, Plant Industry..	16
Meat-inspection division, Animal Industry Bureau, work.....	12
law, enforcement, work of Solicitor's office.....	4
Meharg, A. S., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
Mehlig, J. P., assistant, insecticide and fungicide laboratory, Chemistry Bureau.....	29
Meinecke, E. P., forest pathologist, Plant Industry.....	15
Mell, Clayton D., assistant dendrologist, Forest Service.....	22
Meloy, F. E., property clerk, Plant Industry Bureau	14
Melvin, A. D., chief, Animal Industry Bureau.....	10
Melzar, E. A., assistant chief, accounts and disbursements, Forest Service....	22
Mengel, C. W., assistant drainage engineer, Experiment Stations Office.....	46
Mercier, W. B., general agent, farmers' demonstration work, Plant Industry...	19
Merg, A. R., assistant, laboratories, Soils Bureau.....	33
Merick, Lovina, scientific assistant, seed-testing laboratories, Plant Industry..	17
Merrill, E. C., assistant, drugs division, Chemistry Bureau	28
J. L., assistant, leather and paper laboratory, Chemistry Bureau.....	30
O. C., chief engineer, lands branch, Forest Service.....	23
Metcalfe, Haven, pathologist in charge, forest pathology investigations, Plant Industry.....	15
Meteorological research laboratory, Weather Bureau, Mount Weather, Va.....	8
Meteorology. <i>See</i> Weather Bureau.	
Meyer, A. H., assistant, Soil Survey.....	34
Frank N., agricultural explorer, foreign seed and plant introduction, Plant Industry.....	20
Microchemical laboratory, Chemistry Bureau, work.....	30-31
Miles, G. F., scientific assistant, cotton and truck diseases, Plant Industry...	15
Miller, C. H., scientific assistant, farm management, Plant Industry.....	18
D. G., engineer for irrigated lands, Experiment Stations Office.....	46
H. A., assistant agriculturist, farm management investigations, Plant Industry.....	18
R. C., assistant, grain standardization, Plant Industry.....	16
Milner, R. D., assistant, nutrition investigations, Experiment Stations Office..	45
Miscellaneous division, Chemistry Bureau, work.....	29
investigations, Entomology Bureau, work.....	37
section, Accounts Division, work.....	38
Mitchell, A. S., chief, food-inspection laboratory, Chemistry Bureau, St. Paul, Minn., and member food and drug inspection board	27, 48
Alexander J., section director, Weather Bureau, Jacksonville, Fla.....	9

	Page.
Mitchell, G. F., scientific assistant, drug-plant investigations, etc., Plant Industry.....	16
L. C., assistant, food-inspection laboratory, Chemistry Bureau.....	27
Mohler, John R., chief, pathological division, Animal Industry Bureau.....	13
Monroe, Geo. E., assistant agriculturist, farm management investigations, Plant Industry.....	18
Mooney, C. N., assistant, Soil Survey.....	34
Moore, A. H., assistant botanist, taxonomic and range investigations, Plant Industry.....	18
C. C., assistant, plant physiological chemistry, Chemistry Bureau.....	32
R. B., assistant, laboratories, Soils Bureau.....	33
R. S., assistant editor, Publications Division.....	39
S. L., assistant district forester, acquisition of lands, Forest Service.....	25
Theodore T., chief telegraph division, Weather Bureau.....	8
Willis L., chief, Weather Bureau, work.....	5, 48
Moorehouse, L. A., assistant agriculturist, farm management investigations, Plant Industry.....	18
Morgan, A. E., engineer, drainage investigations, Experiment Stations Office..	46
F. P., assistant, drugs division, Chemistry Bureau.....	28
G. W., agent, forage crop investigations, Plant Industry.....	18
George L., special field agent, Statistics Bureau.....	41
W. J., assistant, insecticide and fungicide laboratory, Chemistry Bureau.....	29
Morrell, Fred W., assistant district forester, acquisition of lands, Forest Service..	25
Morris, E. L., assistant, grain standardization, Plant Industry.....	16
Morrison, J. D., agent, cereal investigations, Plant Industry.....	17
T. M., assistant, Soil Survey.....	34
Morse, E. W., assistant editor, Experiment Stations Office.....	44
George Byron, in charge, poultry diseases, etc., Animal Industry.....	13
W. J., scientific assistant, forage crop investigations, Plant Industry...	18
Moss, B. L., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
E. G., assistant in tobacco investigations, Plant Industry.....	17
James M., jr., scientific assistant, seed-testing laboratories, Plant Industry..	17
Moth, brown-tail, investigations, Entomology Bureau, work.....	37
gipsy, investigations, Entomology Bureau, work.....	37
Moulton, L. T., member Crop Reporting Board, Statistics Bureau.....	41
Mount Weather Meteorological Research Laboratory, Weather Bureau.....	9
Mowry, H. H., assistant, farm management, Plant Industry.....	18
Mudd, A. I., chief clerk, Publications Division.....	38
Mundell, J. E., farm superintendent, dry-land agriculture investigations, Plant Industry.....	19
Murray, A. G., assistant, drugs division, Chemistry Bureau.....	28
Nat C., associate statistician, and member of Crop Reporting Board, Statistics Bureau.....	40, 41
Neal, J. W., assistant, Fairbanks (Alaska) Experiment Station.....	44
Nelson, E. K., chief, essential oils laboratory, Chemistry Bureau.....	28
J. W., assistant district forester, acquisition of lands, Forest Service; assistant, Soil Survey.....	26, 34
P., assistant, Guam Experiment Station.....	45
Nevius, W. J., cashier and chief clerk, in charge, cashier's section, Account Division.....	38
Nitrogen section, Chemistry Bureau, work.....	32
Norcross, T. W., district engineer, districts 2 and 3, Forest Service, Denver, Colo., and Albuquerque, N. Mex.....	25
Northen, W. J., member Crop Reporting Board, Statistics Bureau.....	41
Norton, J. B., physiologist, cotton and truck diseases, Plant Industry.....	15
Nunn, Roscoe, section director, Weather Bureau, Nashville, Tenn.....	10
Nutrition investigations, Experiment Stations Office, work.....	45
Oakley, R. A., assistant agrostologist, forage crop investigations, Plant Industry.....	18
Observations and reports division, Weather Bureau.....	5-6
Observatory, Mount Weather Meteorological Research, Weather Bureau.....	9
Occupancy office, branch of lands, Forest Service, work.....	23

Ogden, A. W., acting chief, food inspection laboratory, Chemistry Bureau, New York.....	27
Oil, fat, and wax, laboratory, division of foods, Chemistry Bureau, work.....	27
Okey, Chas. W., drainage engineer, Experiment Stations Office.....	46
Oliver, George W., expert propagator, foreign seed and plant introduction, Plant Industry.....	20
Olmsted, Victor H., statistician and chief, Statistics Bureau; chairman Crop Reporting Board.....	40
Olson, Otto, assistant in tobacco investigations, Plant Industry.....	17
Operation branch, Forest Service, work.....	22, 25
Orton, W. A., pathologist in charge, cotton-disease investigations, etc., Plant Industry.....	15
Osborn, W. M., assistant, dry-land agriculture investigations, Plant Industry..	19
Page, Logan Waller, director, Public Roads Office.....	47
W. B., assistant, laboratories, Soils Bureau.....	33
Paine, H. S., assistant, physical chemistry laboratory, Chemistry Bureau.....	31
Palkin, S., assistant, drugs division, Chemistry Bureau.....	28
Palmer, T. S., assistant chief, and in charge of game protection, etc., Biological Survey.....	37
Palmore, J. I., assistant, food inspection laboratory, Chemistry Bureau.....	27
Paper-plant investigations, etc., Plant Industry Bureau, work.....	16
Parasites, animal, and insects in relation to disease, Entomology Bureau, work..	36
Parker, C. E., assistant, drugs division, Chemistry Bureau.....	28
J. I., in charge claims office, lands branch, Forest Service.....	23
Patents, work in Solicitor's office.....	4
Pathological collections and inspection, Plant Industry Bureau, work.....	14
division, Animal Industry Bureau, work.....	13
Patrick, G. E., chief, dairy laboratory, Chemistry Bureau.....	30
Patten, C. G., expert, field investigations in pomology, Plant Industry.....	19
Patterson, Flora W., mycologist in charge pathological collections and inspection work, Plant Industry.....	14
Patton, H. E., assistant, division of foods, Chemistry Bureau.....	27
Pearce, Julia R., laboratory assistant, biophysical investigations, Plant Industry.....	16
Peck, A. S., assistant district forester, acquisition of lands, Forest Service....	25
Peirce, Vernon M., chief engineer, Public Roads Office.....	47
Pennington, M. E., chief, food research laboratory, Chemistry Bureau.....	30
Peters, J. G., chief, State cooperation, branch of silviculture, Forest Service..	23
Peterson, C. E., assistant, western irrigation agriculture, Plant Industry.....	19
F. L., in charge Nevada irrigation investigations, Experiment Stations Office.....	46
W. A., farm superintendent, western irrigation agriculture, Plant Industry.....	19
Pfaender, M., assistant, dry-land agriculture investigations, Plant Industry....	19
Phelps, J. K., assistant, drugs division, Chemistry Bureau.....	28
Phillips, D., special field agent, Statistics Bureau.....	41
E. F., in charge, bee-culture investigations, Entomology Bureau.....	36
J. V., drainage engineer, Experiment Stations Office.....	46
Physical Chemistry Laboratory, Chemistry Bureau, work.....	31
Pickens, James M., editor, Animal Industry Bureau.....	14
Pierce, H. C., assistant, food-research laboratory, Chemistry Bureau.....	30
Leslie, agent, fruit-disease investigations, Plant Industry.....	14
Pinney, F. S., member Crop Reporting Board, and special field agent, Statistics Bureau.....	41
Piper, Charles V., agrostologist in charge forage crop investigations, Plant Industry.....	17
Pittier, H., agent, crop-plant acclimatization, Plant Industry.....	16
Plant and seed introduction, Plant Industry Bureau, work.....	20
Industry Bureau, divisions, officials, work.....	14-20
physiological chemistry section, Chemistry Bureau, work.....	32
Plath, C. H., assistant dry-land agriculture investigations, Plant Industry.....	19
Plummer, Fred G., chief, geography office, operation branch, Forest Service..	23
Pohlers, G. F., draftsman, drainage investigations, Experiment Stations Office..	46
Pollock, Rosswitte E., section director, Weather Bureau, Trenton, N. J.....	10
Pomeroy, C. S., expert, field investigations in pomology, Plant Industry.....	19

	Page.
Pomological collections, Plant Industry Bureau, work.....	19
Pool, Venus W., scientific assistant, cotton and truck diseases, Plant Industry..	15
Pooler, Frank C., assistant district forester, acquisition of lands, Forest Service..	26
Pope, George W., acting assistant chief, tuberculin testing of dairy cattle, Animal Industry.....	13
W. B., assistant, insecticide and fungicide laboratory, Chemistry Bureau.....	29
Porto Rico Experiment Station, work.....	45
Potter, A. A., assistant pathologist, cereal investigations, Plant Industry.....	17
Albert F., associate forester, and in charge branch of grazing, Forest Service.....	20, 24
Pratt, B. B., scientific assistant, field investigations in pomology, Plant Industry.....	19
Preston, J. F., assistant district forester, acquisition of lands, Forest Service...	25
Pritchard, F. J., physiologist, cotton and truck diseases, Plant Industry.....	15
Proctor, W. F., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
Production and distribution division, Statistics Bureau, work.....	42
Products branch, Forest Service, work.....	24-25, 26
Pryor, W. L., member Crop Reporting Board, and special field agent, Statistics Bureau.....	41
Public Roads Office, divisions, officials, work.....	47
Publications, distribution, Publications Division, work.....	39, 40
Publications Division, sections, officials, and work.....	38-40
Publication division, Weather Bureau, work.....	8
Pursell, Ulysses G., section director, Weather Bureau, Minneapolis, Minn....	9
Quaintance, A. L., in charge, deciduous-fruit insect investigations, Entomology Bureau; member insecticide and fungicide board.....	35, 48
Quarantine acts, enforcement, work of Solicitor's office.....	4
division, Animal Industry Bureau, work.....	13
Quicksall, J. L., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
Rabak, Frank, chemical biologist, drug-plant investigations, etc., Plant Industry.....	16
Rabild, Helmer, in charge dairy farming, Animal Industry Bureau.....	12
Radio telegraph weather reports, remarks.....	6
Ramsay, R. A., chief, field-inspection division, Animal Industry Bureau.....	12
Ramsey, H. J., expert, field investigations in pomology, Plant Industry.....	19
Rand, F. V., scientific assistant, fruit-disease investigations, Plant Industry...	14
Rankin, John M., assistant superintendent in charge plant-introduction garden, Rockville, Md., Plant Industry.....	20
Ransom, B. H., chief, zoological division, Animal Industry Bureau.....	13
Rawl, B. H., chief, dairy division, Animal Industry Bureau.....	11
Raynor, O. S., scientific assistant, farm management, Plant Industry.....	18
Read, Effie A., assistant, microchemical laboratory, Chemistry Bureau.....	31
Reed, C. A., special agent, field investigations in pomology, Plant Industry...	19
E. O., assistant, leather and paper laboratory, Chemistry Bureau.....	30
Franklin W., forest inspector, operation branch, Forest Service.....	22
J. B., assistant, water laboratory, Chemistry Bureau.....	29
Reeder, George, section director, Weather Bureau, Columbia, Mo.....	9
Reeve, Charles S., chemist, Public Roads Office.....	47
Referee board, consulting scientific experts, members and duties.....	47-48
Reid, F. R., assistant, fertility investigations, Soils Bureau.....	34
Remsen, Ira, chairman, referee board consulting scientific experts.....	47
Research and reference division, Statistics Bureau, work.....	43
Rice, A. G., chief clerk Soils Bureau.....	33
T. D., assistant, Soil Survey.....	34
Richardson, J. W., member Crop Reporting Board and special field agent, Statistics Bureau.....	41
Richey, Fred D., scientific assistant, corn investigations, Plant Industry.....	17
Rickards, J. E., special field agent, Statistics Bureau.....	41
Ricker, P. L., assistant botanist, taxonomic and range investigations, Plant Industry.....	18
Rieger, J. B., assistant, drugs division, Chemistry Bureau.....	28
Riley, J. G., assistant, food-inspection laboratory, Chemistry Bureau.....	27

	Page.
Riley, Smith, district forester, Forest Service, Denver, Colo.....	25
Ringland, A. C., district forester, Forest Service, Albuquerque, N. Mex.....	25
Rittue, E. C., assistant, cotton and truck diseases, Plant Industry.....	15
Ritzman, E. G., animal husbandman, Porto Rico Experiment Station.....	45
River and flood division, Weather Bureau, work.....	6-7
Rixford, G. P., expert, crop physiology and breeding investigations, Plant Industry.....	15
Roads, Public, Office, divisions, officials, work.....	47
Roark, R. C., assistant, insecticide and fungicide laboratory, Chemistry Bureau.....	29
Roberts, J. W., scientific assistant, fruit-disease investigations, Plant Industry.....	14
Orris W., section director, Weather Bureau, Bismarck, N. Dak.....	10
R. W., duties as appointment clerk.....	2
Robertson, F. E., scientific assistant, farm management, Plant Industry.....	18
R. D., in charge central California irrigation investigations, Experiment Stations.....	46
Robinson, W. O., assistant, laboratories, Soils Bureau.....	33
Rockwell, J. E., in charge publications, Plant Industry Bureau.....	14
W. L., in charge Texas irrigation investigations, Experiment Stations Office.....	46
Rogers, J. S., assistant, leather and paper laboratory, Chemistry Bureau.....	30
L. A., in charge, dairy-products investigations, Animal Industry Bureau.....	12
P. A., member Crop Reporting Board, Statistics Bureau.....	41
R. L., forest examiner, acquisition of lands, Forest Service.....	25
Rommel, George M., chief, animal husbandry division, Animal Industry.....	11
Root, Clarence J., section director, Weather Bureau, Springfield, Ill.....	9
Rosenbaum, Joseph, agent, cotton and truck diseases, Plant Industry.....	15
Ross, A. B., assistant agriculturist, farm management investigations, Plant Industry.....	18
John F., farm superintendent, cereal investigations, Plant Industry....	17
S. H., chief, food inspection laboratory, Chemistry Bureau, Omaha, Nebr.	27
W. H., assistant, laboratories, Soils Bureau.....	33
Rothrock, Philip, assistant, grain standardization, Plant Industry.....	16
Russell, C. A., assistant, grain standardization, Plant Industry.....	16
Rutledge, R. H., assistant district forester, acquisition of lands, Forest Service..	26
Safford, W. E., assistant curator, taxonomic and range investigations, Plant Industry.....	18
Sahr, C. A., assistant in agronomy, Hawaii Experiment Station.....	45
Salant, Wm., chief, pharmacological laboratory, Chemistry Bureau.....	28
Sale, J. W., assistant, water laboratory, Chemistry Bureau.....	29
Salisbury, George N., section director, Weather Bureau, Seattle, Wash.....	10
Sammet, C. F., assistant, leather and paper laboratory, Chemistry Bureau....	30
Sandy, T. O., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
Sargent, Paul D., assistant director, Public Roads Office.....	47
Saunders, D. A., agent, crop plant acclimatization, Plant Industry.....	16
Savage, E. M., assistant plant breeder, crop physiology, etc., Plant Industry..	15
F. W., special agent, crop physiology, etc., Plant Industry.....	15
G. O., editor, Chemistry Bureau.....	26
Savely, H. E., general agent, farmers' demonstration work, Plant Industry....	19
Scales, F. M., scientific assistant, soil bacteriology, Plant Industry.....	15
Scherffius, B. F., expert, tobacco investigations, Plant Industry.....	17
Schlick, W. J., assistant drainage engineer, Experiment Stations Office.....	46
Schmidt, G. C., assistant, contracts laboratory, Chemistry Bureau.....	29
Richard, expert, field investigations, Plant Industry.....	19
Schneider, Charles F., section director, Weather Bureau, Grand Rapids, Mich..	9
Schoenmann, L. A., assistant, Soil Survey.....	34
Schools, relations with Experiment Stations Office, work.....	45
Schreiber, Herman, special investigations, Chemistry Bureau.....	33
Schreiner, Oswald, scientist, in charge of Fertility Investigations.....	34
Schroeder, E. C., superintendent, Bethesda, Md., experiment station, Animal Industry Bureau.....	13
Schulte, J. I., assistant editor, Experiment Stations Office.....	44
Schulz, H. L., chief, food inspection service, Chemistry Bureau, Detroit.....	27

	Page.
Sniffin, William W., editorial clerk and librarian, Public Roads Office.....	47
Snodgrass, M. D., assistant, Kodiak, Alaska, Experiment Station.....	44
Snowden, Mason, State agent, farmers' cooperative demonstration work, Plant Industry.....	19
Snowfall data, gathering.....	7
Soil bacteriology investigations, Plant Industry Bureau, work.....	15
Survey, Soils Bureau, work.....	33-34
Soils Bureau, divisions, officials, and work.....	33-34
Solicitor, office, organization and duties.....	3-5
Solicitor's field assistants, list and work.....	4-5
Spain, J. M., assistant, western irrigation agriculture, Plant Industry.....	19
Spaulding, Perley, pathologist, forest pathology investigations, Plant Industry.....	15
Special investigations, Bureau of Chemistry, work.....	32-33
Speh, C. F., assistant, leather and paper laboratory, Chemistry Bureau.....	30
Spillman, W. J., agriculturist in charge, farm management investigations, Plant Industry.....	18
Squire, Charles H., in charge of occupancy office, branch of lands, Forest Service.....	23
St. John, B. H., assistant, drugs division, Chemistry Bureau.....	28
E. Q., assistant, food research laboratory, Chemistry Bureau.....	30
Stahl, C. J., assistant district forester, acquisition of lands, Forest Service.....	26
Staley, W. D., field assistant to Solicitor.....	4
Stallings, B. D., editor and assistant chief, Publications Division.....	38, 39
Stanford, E. A., scientific assistant, farm management, Plant Industry.....	18
Stanley, F. W., in charge South Atlantic States irrigation investigations, Experiment Stations Office.....	46
Stanton, T. R., scientific assistant, cereal investigations, Plant Industry.....	17
Stark, C. C., assistant, laboratories, Soils Bureau.....	33
State cooperation, branch of silviculture, Forest Service, work.....	23-24
Statistics Bureau, divisions, officials, and work.....	40-43
Steddom, Rice P., chief, meat inspection division, Animal Industry.....	12
Stedman, J. M., assistant, farmers' institute work, Experiment Stations Office..	45
Stenographic section, Solicitor's office.....	4
Stephens, D. E., farm superintendent, cereal investigations, Plant Industry ..	17
J. M., farm superintendent, dry-land agriculture investigations, Plant Industry.....	19
Stephenson, C. H., assistant, microchemical laboratory, Chemistry Bureau....	31
Stevens, F. D., assistant agriculturist, farm management investigations, Plant Industry.....	18
Stiles, G. W., jr., in charge, section of bacteriological chemistry, Chemistry Bureau.....	31
Stockberger, W. W., physiologist, drug-plant investigations, etc., Plant Industry.....	16
Stockman, William B., section director, Weather Bureau, Honolulu.....	9
Storm-warning stations, Weather Bureau, work.....	5-6
Stover, A. P., in charge Oregon irrigation investigations, Experiment Stations Office.....	46
Strahorn, A. T., assistant, Soil Survey.....	34
Straughn, M. N., assistant, sugar laboratory; studies on cantaloupes; Chemistry Bureau.....	31, 33
Stuart, R. Y., assistant district forester, acquisition of lands, Forest Service...	25
William, horticulturist, Arlington Farm, Plant Industry.....	20
Stubenrauch, A. V., expert in charge, field investigations in pomology, Plant Industry.....	19
Stuntz, Stephen C., botanical assistant, foreign seed and plant introduction, Plant Industry.....	20
Sudworth, George B., dendrologist, Forest Service.....	22
Sugar laboratory, Chemistry Bureau, work.....	31
Sugar-plant investigations, Plant Industry Bureau, work.....	15
Sullivan, A. L., assistant, food-inspection laboratory, Chemistry Bureau.....	27
M. X., assistant, fertility investigations, Soils Bureau.....	34
Supplies division, Weather Bureau.....	8
Supply division, Department, chief, duties.....	2
Swan, O. T., in charge of wood utilization, branch of products, Forest Service..	25
Sweet, A. T., assistant, Soil Survey.....	34
Swingle, Walter T., physiologist in charge, crop physiology, etc., Plant Industry.	15

	Page.
Tabor, W. C., assistant, food-inspection laboratory, Chemistry Bureau.....	27
Tait, C. E., in charge southern California irrigation investigations, Experiment Stations Office.....	46
Talman, Charles F., librarian, Weather Bureau.....	8
Tate, H. D., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
Taxonomic and range investigations, Plant Industry Bureau, work.....	18
Taylor, A. E., acting chief, food-inspection laboratory, Chemistry Bureau, San Juan, P. R.....	27
assistant, Soil Survey.....	34
Alonzo E., member referee board consulting scientific experts.....	47
William A., pomologist and assistant chief, Plant Industry.....	14, 48
Technology, Economical, section, Chemistry Bureau, work.....	32
Telegraph division, Weather Bureau, work.....	8
Tharp, W. E., assistant, Soil Survey.....	34
Thiessen, Alfred H., section director and editor, Weather Bureau, Salt Lake City, Utah.....	10
Thomas, Levi M., assistant, grain standardization, Plant Industry.....	16
Thompson, Alice R., assistant chemist, Hawaii Experiment Station.....	45
F. C., fiscal agent, Forest Service section, Accounts Division, San Francisco, Cal.....	38
G. E., scientific assistant, forage-crop investigations, Plant Industry.....	18
H. C., expert, Arlington Farm, Plant Industry.....	20
Harry, expert, farm management, Plant Industry.....	18
J. B., in charge Guam Experiment Station.....	45
James, expert, drug-plant investigations, etc., Plant Industry.....	16
M. J., scientific assistant, farm management, Plant Industry.....	18
S. C., in charge, dairy manufacturing investigations, Animal Industry Bureau.....	12
Thomson, E. H., assistant agriculturist, farm-management investigations, Plant Industry.....	18
Thysell, J. C., assistant, dry-land agriculture investigations, Plant Industry..	19
Tidestrom, Ivar, assistant botanist, taxonomic and range investigations, Plant Industry.....	18
Tiller, Ruby J., scientific assistant, pathological collections, Plant Industry...	14
Tillman, B. W., assistant editor, Experiment Stations Office.....	44
Timber stand, National Forests, estimation.....	21
Titles, examinations in Forest Service.....	3
Tobacco investigations, etc., Plant Industry Bureau, work.....	17
Tolman, L. M., chief, food-inspection laboratory, Chemistry Bureau.....	27
Townsend, C. O., pathologist, cotton and truck diseases, Plant Industry.....	15
W. E., expert, western irrigation agriculture, Plant Industry.....	19
Tracy, J. E. W., assistant superintendent, Congressional seed distribution, Plant Industry.....	20
S. M., special agent, forage crop investigations; assistant agriculturist, farm-management investigations; Plant Industry Bureau.....	18
Trade-wastes laboratory, Chemistry Bureau, work.....	29
Traum, Jacob, assistant in animal bacteriology, Animal Industry.....	13
Trescot, T. C., in charge, nitrogen section, Chemistry Bureau.....	32
Trespases, Forest Service, law work.....	3
Treuthardt, E. L. P., assistant, division of foods, Chemistry Bureau.....	27
Trowbridge, G. E., field assistant to Solicitor.....	4
Truck-disease investigations, Plant Industry Bureau, work.....	15
True, A. C., director Experiment Stations Office.....	43
Rodney H., physiologist in charge, drug-plant investigations, etc., Plant Industry.....	16
Trullinger, R. W., assistant editor, Experiment Stations Office.....	44
Turrentine, J. W., assistant, laboratories, Soils Bureau.....	33
Twenty-eight hour law, enforcement.....	3
Urbanowicz, J. A., fiscal agent, Forest Service section, Accounts Division, Missoula, Mont.....	38
Van Duyne, C., assistant, Soil Survey.....	34
Van Fleet, Walter, expert, drug-plant investigations, etc., Plant Industry....	16
Vanatta, E. S., assistant, Soil Survey.....	34

	Page.
Veatch, J. O., assistant, Soil Survey.....	34
Veihmeyer, Frank J., scientific assistant, pathological collections, Plant Industry.....	14
Veitch, F. P., chief, leather and paper laboratory, Chemistry Bureau.....	30
Vinall, H. N., assistant agrostologist, forage crops, Plant Industry.....	18
Waggaman, W. H., assistant, laboratories, Soils Bureau.....	33
Waha, A. O., assistant district forester, acquisition of lands, Forest Service....	25
Waite, Merton B., pathologist in charge, fruit-disease investigations, Plant Industry; member Insecticide Board.....	14, 48
Waldrop, C. S., assistant, Soil Survey.....	34
Walker, P. H., chief, contracts laboratory, Chemistry Bureau.....	29
Walter, H. L., assistant, cattle-food and grain laboratory, miscellaneous division, Chemistry Bureau.....	29
Walz, Ferdinand J., section director and editor, Weather Bureau, Louisville, Ky.....	9
Warburton, C. W., agronomist, cereal investigation, Plant Industry.....	17
Washburn, Henry J., senior bacteriologist, Animal Industry Bureau.....	13
Water laboratory, miscellaneous division, Chemistry Bureau, work.....	29
Warren, G. M., drainage engineer, Experiment Stations Office.....	46
Watson, C. W., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
E. B., assistant, Soil Survey.....	34
L. O., agent, cotton and truck diseases, Plant Industry.....	15
Wax, fat, and oil laboratory, division of foods, Chemistry Bureau, work.....	27
Weather Bureau, organization, work, etc.....	5-10
section, Accounts Division, work.....	37
stations outside Washington.....	9
Review, Monthly, preparation and purpose.....	7, 10
Weber, F. C., in charge, section of animal physiological chemistry, Chemistry Bureau.....	31
Webster, F. M., in charge, cereal and forage-insect investigations, Entomology..	35
Weeks law, acquisition of lands, Forest Service, work of office under.....	25
Weir, James F., forest pathologist, Plant Industry.....	15
W. W., engineer for irrigated lands, Experiment Stations Office.....	46
Weiss, H. F., assistant director, branch of products, Forest Service.....	24
Wells, Edward L., section director, Weather Bureau, Boise, Idaho.....	9
Wessling, H. L., assistant, plant physiological chemistry, Chemistry Bureau..	32
Western irrigation agriculture, Plant Industry, work.....	19
Westgate, J. M., agronomist, forage crop investigations, Plant Industry.....	18
Westover, H. L., assistant, Soil Survey.....	34
Whitcomb, W. O., assistant, dry-land agriculture investigations, Plant Industry.....	19
White, B. C., member Crop Reporting Board and special field agent, Statistics Bureau.....	41
Whitman, H. A., assistant, insecticide and fungicide laboratory, Chemistry Bureau.....	29
Whitney, Milton, soil physicist and chief, Soils Bureau.....	33
Wilcox, E. V., in charge Hawaii Experiment Station.....	45
Wilder, H. J., assistant, Soil Survey.....	34
Wilkus, A. J., assistant, Sitka, Alaska, Experiment Station.....	44
Willer, J. G., scientific assistant, corn investigations, Plant Industry.....	17
Williams, Henry E., assistant chief, Weather Bureau, work.....	5
L. S., assistant in charge of illustrations, Publications Division.....	39
Milo B., in charge humid section irrigation investigations, Experiment Stations Office.....	46
R. W., assistant to the Solicitor, work.....	3
Wilson, C. P., assistant, food technology laboratory, Chemistry.....	27
J. B., assistant, contracts laboratory, Chemistry Bureau.....	29
James, duties as Secretary.....	2
R. S., State agent, farmers' cooperative demonstration work, Plant Industry.....	19
Wilford M., section director and editor, Weather Bureau, Ithaca, N. Y..	10
Winckelmann, H., assistant, fertility investigations, Soils Bureau.....	34
Winston, R. A., assistant, Soil Survey.....	34
Winton, A. L., chief, food inspection laboratory, Chemistry Bureau, Chicago..	27

	Page.
Wise, F. B., assistant, grain standardization, Plant Industry.....	16
Withers, W. A., member Crop Reporting Board, Statistics.....	41
Witmer, E., assistant, food research laboratory, Chemistry Bureau.....	30
Wollenweber, H. W., expert, cotton and truck diseases, Plant Industry.....	15
Wood, P. O., assistant, Soil Survey.....	34
utilization, branch of products, Forest Service, work.....	25
Woodbury, T. D., assistant district forester, acquisition of lands, Forest Service.	25
Woodward, B. T., in charge, tuberculin testing dairy cattle, Animal Industry.	13
K. W., in charge examination of lands, acquisition of lands under	
Weeks law, Forest Service.....	25
S. M., engineer, drainage investigations, Experiment Stations	
Office.....	46
Woodworth, J. E., member Crop Reporting Board and special field agent, Sta-	
tistics.....	41
Wooten, E. O., assistant curator, farm management, Plant Industry.....	18
Working, D. W., assistant agriculturist, farm management investigations, Plant	
Industry.....	18
Wright, C. D., assistant, drugs division, Chemistry Bureau.....	28
R. C., scientific assistant, soil bacteriology, Plant Industry.....	15
Wyatt, W. Carl, chief clerk, Public Roads Office.....	47
Yarnell, D. L., drainage engineer, Experiment Stations Office.....	46
Yearbook, Department, preparation, etc., Publications Division.....	39
Yerby, Everett D., supervising auditor, in charge auditing section, Accounts	
Division.....	38
Yoder, P. A., assistant, plant physiological chemistry, Chemistry Bureau.....	32
Yohe, H. S., senior clerk, drainage investigations, Experiment Stations Office.	46
Young, R. A., scientific assistant, foreign seed and plant introduction, Plant	
Industry.....	20
R. Frank, section director, Weather Bureau, Helena, Mont.....	10
T. B., scientific assistant, drug-plant investigations, etc., Plant Indus-	
try.....	16
Zappone, A., chief, and disbursing clerk, Accounts and Disbursements Division	37
Zon, Raphael, chief, silvics office, branch of silviculture, Forest Service.....	24
Zook, L. L., scientific assistant, corn investigations, Plant Industry.....	17
Zoological division, Animal Industry Bureau, work.....	13